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# Diet and Hygiene:

## A MAGAZINE

OF

# FOOD, DIETETICS, and HEALTH.

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*EDITED BY*

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*Formerly Editor of "PUBLIC HEALTH."*

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# INDEX.

## A.


| | PAGE. |
|---|---|
| Abbotts, Dr. :—How to Breathe Properly | 15 |
| The Pine Treatment at Home | 66 |
| Tea and Coffee | 105 |
| School Hygiene | 168 |
| Constant *versus* Intermittent Water Supply | 205 |
| Noxious Manufactures | 241 |
| Sea-Bathing | 249 |
| Deafness from Sea-Bathing | 293 |
| Hay-Fever | 297 |
| Hydrophobia | 345 |
| Clacton-on-Sea and Walton-on-the Naze | 368 |
| Inhalation as a Remedial Agent | 489, 521 |
| Hastings and St. Leonards | 513 |
| Longevity | 542 |
| Adulteration | 104 |
| Of Lard | 141 |
| Olive Oil | 546 |
| Aerated Waters, Manufacture of | 369, 473 |
| Agricultural Losses | 247 |
| Ainsworth, Dr. :—Food and Cookery in Turkey | 191, 210, 337 |
| Air and Light | 50 |
| Alcohol | 3 |
| American Wheat Crops | 536 |
| Apologies, Excessive | 464 |
| Apology for Existence | 1 |
| Apple-Tree Annual | 386 |
| Architects, Good Idea for | 530 |
| Arsenic in the Home | 481 |
| Asylum Inspection | 391 |
| Athletic Training | 196 |
| Australian Wines | 199 |


## B.


| | |
|---|---|
| Banana, The, and Cacao | 273 |
| Bartlett, Dr. H. C. :—Food and Its Relation to the Human Body | 5 |
| Rabbits' Flesh as Food | 166 |
| Beeswax *versus* Water | 392 |
| Bible, Diseases of the | 80 |
| Bishop of Liverpool on Sanitation | 55 |
| Bournemouth | 134 |
| Bread and Food Reform League | 102 |
| British Health-Resorts | 29, 82, 134, 175, 215, 277 329, 359, 368, 513 |
| Burial Reform | 149 |
| Buchanan, Dr. :—Precautions against Epidemic Diseases | 393 |
| Butter | 440 |
| Buxton and the Peak | 277 |


## C.


| | PAGE. |
|---|---|
| Caffeine | 536 |
| Carbolic Acid Poisoning | 462 |
| Carbonic Acid | 536 |
| Carbon Food-Safes | 344 |
| Carnot, President, on Hygiene | 56 |
| Caviare | 405 |
| Charity Dinners | 463 |
| Cheap and Wholesome Foods | 351, 443, 537 |
| Fruit | 312 |
| Vegetables | 54 |
| Chef, Interview with a | 390 |
| Chewing-Gum | 54 |
| Circulation, Physiology of | 288 |
| Clacton-on-Sea | 368 |
| Climatology | 46 |
| Coffee and Tea | 105 |
| Cold Bath and its Dangers | 164 |
| Cold Spell, The Recent | 412 |
| Cold Weather, from a Sanitary Point of View | 508 |
| Completion of our First Century | 201 |
| Compulsory Notification of Infectious Diseases | 145 |
| Constant *versus* Intermittent Water Supply | 205 |
| Convalescent Home | 391 |
| Cookery, Art of | 496 |
| Country Labourers' Cottages | 527 |
| Costa Rica | 98, 487 |
| Corsica | 225 |
| Cremation | 101, 454 |
| Crespi, Dr. :—Droitwich | 82 |
| Employment of Women | 110 |
| Vegetarianism | 155 |
| St. John's Ambulance Association | 229 |
| Total Abstinence | 317 |
| Cheap and Wholesome Foods | 351, 443, 537 |
| The New Forest | 359 |
| Prices, Past and Present | 397, 419 |
| Health Papers | 476 |
| Suicides | 495 |
| Customs, Old and New | 248 |


## D.


| | |
|---|---|
| Dead, Disposal of the | 509, 532 |
| Deafness from Sea-Bathing | 293 |
| Destitute, Food for the | 465 |
| Diabetics, Diet of | 483 |
| Diet, Special | 388 |
| Digestion, Physiology of | 374 |
| Dinsdale-on-Tees | 281, 336 |
| Disinfectants | 390 |
| Distemper Madness | 345 |
| Droitwich and its Brine Baths | 82 |

## E.

PAGE.
Earrings ... ... ... ... ... ... ... ... 28
Easily Satisfied ... ... ... ... ... ... ... 536
Edax Rerum ... ... ... ... ... ... ... 149
Edible Birds' Nests ... ... ... ... ... ... 430
Education, Hygiene of ... ... ... ... ... 424
Eggs ... ... ... ... ... ... ... ... 74, 439
Elementary Physiology 222, 288, 340, 378, 406, 458
Employment of Women ... ... ... ... ... 110
Epidemics, Precautions against ... ... ... 393
Ergot ... ... ... ... ... ... ... ... ... 486
Exhibitions as a Means of Health ... ... ... 93

## F.

Fair Question, A ... ... ... ... ... ... ... 248
Faith Healing ... .. ... ... ... ... ... 535
Fashionable Follies ... ... ... ... ... ... 512
Fasting by Proxy ... ... ... ... ... ... 248
Filtration on a Large Scale ... ... ... ... 338
Fish Culture ... ... ... ... ... 152, 276, 316
Flaix, Fournier de, on Alcohol ... ... ... 3
Flesh Diet and Vegetarianism ... ... ... ... 426
Fog and Smoke ... ... ... ... ... ... 39, 57
Food, in Its Relation to the Human Body ... 5
Food and Cookery Exhibition ... 81, 147, 243, 296
Food and Cookery in Turkey .. ... 191, 210, 337
Fothergill, Dr., Obituary of ... ... ... ... 344
Fruit ... ... ... .. ... ... ... 20, 102, 112
Growing ... ... ... ... ... ... ... 463
Fungi ... ... ... ... ... ... ... ... ... 443

## G.

Galton, Sir Douglas, on Fog and Smoke ... 39, 57
Gourmet and Gourmand ... ... ... ... ... 89
Greenup, Mrs., On Technical Education in Cookery ... ... ... ... ... ... ... ... 127
Gymnastics, Home ... ... ... ... ... ... 410

## H.

Hall, Dr. W. H., on Isle of Wight ... ... ... 175
Hastings ... ... ... ... ... ... ... ... 513
Hay-Fever ... ... ... ... ... ... ... ... 297
Health Culture ... ... ... ... ... ... ... 77
Health Papers ... ... ... ... ... ... ... 476
Healthy Homes ... ... ... ... ... ... ... 203
Hitting the Right Nail on the Head ... ... 536
Home Nursing ... ... ... ... ... ... ... 384
Hospital Clothing, Bedding, and Wards ... 433
Hospital, New Feature in Arrangement ... ... 511
Householders, Sanitary Hints to ... ... ... 468
How to Breathe Properly ... ... ... ... 15, 70
How to Keep Cool ... ... ... ... ... ... 309
How to Live on Sevenpence a Day ... ... ... 464
Human Body, Anatomy of ... ... ... ... 223
Hydrophobia ... ... ... ... ... ... ... 345
Hygiene, in Its Relation to Medicine ... 447, 441
Of Schools ... ... ... ... ... 79, 168

## I.

Ilfracombe ... ... ... ... ... ... ... ... 215
India, Public Hygiene in ... ... ... ... ... 391
Inhalation as a Remedial Agent ... ... 489, 521

## J.

PAGE.
Jaeger, Dr., on Health Culture ... ... ... 77
Hospital Bedding, Clothing, and Wards 438

## K.

Kay, Justice, on Patent Medicines ... ... ... 55
Kef, or Fermented Milk ... ... ... ... ... 131
Kindergarten, Visit to a ... ... ... ... ... 504

## L.

Laboratory, Our ... ... ... ... ... ... 501, 529
Land, Distribution of ... ... ... ... ... 133
Lard, Adulteration of ... ... ... ... 141, 512
Latin for Prescriptions ... ... ... ... ... 53
Leamington ... ... ... ... ... ... ... ... 29
Liebig, Life of ... ... ... ... ... ... ... 45
Life of the Fields ... ... ... ... ... ... 384
Longevity ... ... ... ... ... ... ... ... 542
Lowestoft ... ... ... ... ... ... ... ... 329

## M.

Margarine ... ... ... ... ... ... ... 71, 389
Measles ... ... ... ... ... ... ... ... ... 536
Medical Men, Contemporary ... ... ... .. 80
Medical Directory ... ... ... ... ... ... 80
Menu, The ... ... ... ... ... ... ... .. 436
Meredith, Mr., on Elementary Physiology 222, 288 340, 374, 406, 458
Methylated Spirits ... ... ... ... ... ... 389
Milk ... ... ... ... ... ... ... ... ... 440
Testing ... ... ... ... ... ... ... 266
Adulteration ... ... ... ... ... ... 416

## N.

Nasty Nostrums ... ... ... ... ... ... ... 430
National Health Society ... ... ... ... ... 487
New Forest ... ... ... ... ... ... ... ... 359
Nervous System, Physiology of the ... ... ... 406
New Remedies ... ... ... ... ... ... 145, 238
Nicotine ... ... .. ... ... ... ... ... 536
Now and Then ... ... ... ... ... ... ... 388

## O.

Oatmeal ... ... ... ... ... ... ... ... ... 351
Odd Foods ... ... ... ... ... ... ... ... 119
Olive Oil, Adulteration of ... ... ... ... 546
Ophthalmia in Schools ... ... ... ... ... 511
Our Vile Bodies ... ... ... ... ... ... ... 271

## P.

Parmentier and the Potato ... ... ... ... 44
Pasteur and his Method ... ... ... ... ... 518
Peat *versus* Coal ... ... ... ... ... ... ... 557
Philanthropy and Ten per Cent. ... ... ... 484
Phylloxera ... ... ... ... ... ... ... ... 392
Pine Treatment at Home ... ... ... ... ... 66
Pixene ... ... ... ... ... ... ... .. ... 240
Plea for the Canine Race ... ... ... ... ... 345
Popular Sanitary Teaching ... ... ... ... 153
Population of England and Wales ... ... ... 472
United Kingdom ... ... ... ... ... 133

 1252-5


P.—*continued.*

PAGE.

Power, Sir A., on the Skin ... ... ... ... 494
Prices, Past and Present ... ... ... ... 397, 419
Private Apartments for Fever ... ... ... ... 52
Public Health ... ... ... ... ... ... 214, 418
Pumiline ... ... ... ... ... ... ... ... 66

## Q.

Quacks, Ignorance of ... ... ... ... ... ... 148
Case Book ... ... ... ... ... ... ... 101
Quinine ... ... ... ... ... ... ... ... ... 464

## R.

Rabbits' Flesh as Food ... ... ... ... ... 166
Radcliffe, Dr., on Flesh Diet and Vegetarianism ... ... ... ... ... ... ... ... 426
Railway, Reading in Carriages ... ... ... ... 531
Travelling in India ... ... ... ... ... 440
Fish Rates ... ... ... ... ... ... 150
Registrar-General's Returns ... ... ... ... 148
Respiration, Physiology of ... ... ... ... 340
Restoration of Persons apparently Dead from Drowning ... ... ... ... ... ... ... ... 326
Ringworm, New Theory of ... ... ... ... 549

## S.

Saccharine ... ... ... ... ... ... ... ... 267
Salvation Army ... ... ... ... ... ... ... 435
Sanitary Hints for Householders ... ... ... 468
Sargeant, Dr., on Compulsory Registration of Infectious Diseases ... ... ... ... ... 145
Scarlet Fever ... ... ... ... ... ... ... 463
School Hygiene ... ... ... ... ... ... 79, 168
Sea Air ... ... ... ... ... ... ... ... ... 507
Sea Bathing ... ... ... ... ... ... ... 249
„ Deafness from ... ... ... ... ... ... 293
Sewer gas, Detection of ... ... ... ... ... 391
Ship Ventilation ... ... ... ... ... ... ... 456
Simonds, Mr., on Eggs ... ... ... ... ... 74
Skin, The ... ... ... ... ... ... ... ... 496
Sleep, Hours of ... ... ... ... ... ... ... 440
Smallpox at Sheffield ... ... ... ... ... ... 54
Smart, Dr. F. W., on The Cold Bath and its Danger ... ... ... ... ... ... ... ... 164
Smith, Dr. F. W., on Leamington ... ... ... 29
Smoke Abatement ... ... ... ... ... ... 102
Smoke and Fog ... ... ... ... ... ... 39, 57
Son of a Star, The ... ... ... ... ... ... 552
South Africa, Climate of ... ... ... ... ... 46
Spilling the Salt ... ... ... ... ... ... ... 434
Starvation, Deaths from ... ... ... ... ... 512

S.—*continued.*

PAGE

Stays ... ... ... ... ... ... ... ... ... 429
Stokes, Mr., on Arsenic in the Home ... ... 481
Suicides ... ... ... ... ... ... ... ... 495
Sure Method of Keeping Cheese ... ... ... 387
Swiss Alps, Climate of ... ... ... ... ... 46

## T.

Tea and Coffee ... ... ... ... ... ... 105, 163
Tea Drinking, and Decayed Teeth ... ... ... 503
Technical Education in Cookery ... ... ... 127
Temperate Habits, One Way to Promote ... 391
Thames Purification ... ... ... ... ... ... 104
Tinned Cholera ... ... ... ... ... ... ... 386
„ Meats ... ... ... ... ... ... ... 182
Tomalin, Mrs., How to Keep Cool ... ... ... 309
Total Abstinence ... ... ... ... ... ... 317
Truffles ... ... ... ... ... ... ... ... ... 151

## U.

Undercliff, Isle of Wight ... ... ... ... ... 175
Unemployed Poor ... ... ... ... ... ... 55
Unfermented Wines ... ... ... ... ... ... 235
Unsanitary Bedding ... ... ... ... ... ... 150

## V.

Vegetarianism ... ... ... ... ... ... ... 155
„ and Flesh Diet ... ... ... ... 426
Vegetarian Teaching ... ... ... ... ... ... 392
Ventilation of Ships ... ... ... ... ... ... 456
Vision, Physiology of ... ... ... ... ... 458

## W.

Walton-on-the-Naze ... ... ... ... ... ... 368
Warren, Mr. T. P. B., on Margarine ... ... 71
Lard, and its Adulteration ... ... ... 141
Aerated Waters ... ... ... ... 379, 473
Olive Oil, and its Adulteration ... 546
Water Supply for Towns ... ... ... . . ... 205
Weak Cider ... ... ... ... ... ... ... ... 418
Wear and Tear ... ... ... ... ... ... ... 150
West End Mansions ... ... ... ... ... ... 488
White Lead ... .. ... ... ... ... ... ... 241
Wight, Isle of ... ... ... ... ... ... ... 175
Wine Drinkers, Bad News for ... ... ... ... 148
Woodhall Spa ... ... ... ... ... ... ... 332
Wright, Professor, on Health in relation to Practical Medicine ... ... ... ... ... 437, 441

BARON LIEBIG.

# Diet and Hygiene:

A MONTHLY MAGAZINE

OF

## FOOD, DIETETICS, & HEALTH.

7 JAN 88

VOL. I. JANUARY, 1888. No. 1.

## AN APOLOGY FOR EXISTENCE.

"'THICK as leaves in Vallambrosa,'" do they come, those thousands of periodicals, of all sorts, sizes, and subjects, not always, to quote a well-known advertisement, 'as a boon and a blessing to men.'"

"Then, why add to the number"? promptly observes our candid friend, feeling that he cannot pass over such a splendid opportunity of displaying his acumen.

"Well," we modestly suggest, "We must exist." "I don't see the necessity," retorts our candid friend, gradually working himself up into an argumentative mood. But, not wholly withered by this sarcasm, we again return to the charge: "Yes, our good friend, *we* must exist, you, and I, and every one else; to that end we require Food, and, having conceded this point, where can be the objection to *Diet?* At this juncture, our candid friend rather hurriedly withdraws, muttering some remarks about being late for luncheon and leaves us to conclude our introduction alone.

Food, we venture to assert, is one of the greatest questions, not only of the day, but of all time, and considerably exercises the

minds of all men (and women, too,) from the poor clerk or artizan, struggling to maintain himself and a large family upon a wretchedly small weekly wage, to the typical City alderman, depicted by the novelists of the past generation as men whose geographical knowledge might have been summed up in the names of three localities famous for their contributions to the festive table, viz.—West Indies, Oporto, and Xeres, and whose nearest approach to mental recreation was an occasional half-hour devoted to contemplatively watching the unwieldly gambols of the huge creatures kept in the tanks at the 'Ship and Turtle' till their hour —the alderman's dinner-hour—had come.

Even our remote ancestors, the Ancient Britons, must have felt solicitous as to the tenderness of the acorns, and the succulence of the roots which they literally "grubbed" for their daily meal; and thrilling, indeed, must have been their pleasure when the sun of civilisation had sufficiently dawned to enlighten them as to the respective merits of "baked" and "boiled,"—a vast improvement, doubtless, upon the monotonous repetition of the raw article, and also constituting the first faint, shadowy, outlines of Diet.

But, we do not purpose to limit ourselves to the discussion, merely, of what Samuel Weller, of undying fame, would have tersely, though unscientifically, described as "Wittles and Drink." In connection with the subject of Hygiene, we shall include amongst our contents not only articles upon Foods, Beverages, Dietetics, and Adulterations, but also contributions concerning Health Resorts and Mineral Springs, Climatology, Domestic Medicine and Sanitation, New Remedies and Inventions, and various other important matters affecting the promotion and preservation of Health.

It will now be evident that the magnitude and variety of the subjects which we shall include, constitute a sufficient reason for

bringing out this periodical. Our object is to produce a magazine which shall be useful both to the invalid and to the healthy, and interesting to all. We are strengthened in this hope by the very numerous voluntary offers of support and co-operation which have already reached us, at the outset of our task; and we cannot conclude these introductory remarks without expressing our warm thanks, and our deep sense of the obligation under which we have been placed.

---

## THERE IS BUT ONE ALCOHOL, AND FOURNIER DE FLAIX IS ITS PROPHET!

We are reminded of the famous Eastern saying, of which the heading of this article is a paraphrase, on reading Mons. E. Fouriner de Flaix's recent contribution to the *Revue Scièntifique*.

At the commencement of his article on Alcohol and Alcoholism, M. de Flaix observes, "Some people would have us believe that alcohol, so famous for six centuries as the outcome of Arabian civilisation, is none other than the most dangerous enemy of the human race, a kind of Satanic liquor, a poison worthy of Mephistopheles or of Medea, and able to ruin all our brilliant civilisation;" and M. de Flaix then proceeds to attempt to demonstrate the converse of this proposition. After giving numerous statistics, relating to various French departments and towns, he arrives at the following conclusions :—

1. That the proportion of alochol consumed depends mainly upon the climate.

2. That wealth has only a secondary influence on the consumption of alcohol.

3. That the births are relatively fewer and the deaths more numerous in the departments where the consumption of spirits is low.

4. That crime is not proportionate to the consumption of spirits.

5. That suicide is not proportionate to the consumption of alcohol. For instance, the department Seine-et-Oise consumes only half as much spirits as the department Seine Inférieure, yet the number of suicides in the former is almost double that in the latter. Again the Pas-de-Calais consumes twice as much spirits as the Nord, while the suicides in the Nord are two and a half times more than in the Pas-de-Calais.

The consumption of spirits and beer in the British Isles is given as under :—England, population 27,132,300, uses 16,317,190 gallons of spirits, and 24,315,190 gallons of beer annually ; Scotland, population 3,866,500 consumes 6,612,177 gallons of spirits, and 1,001,851 gallons of beer ; Ireland, population 4,952,500 manages to dispose of 5,065,300 gallons of spirits, and 2,179,253 gallons of beer. These truly Gargantuan figures represent an averege consumption per head as follows :—

| | Gallons, Per head. | |
|---|---|---|
| | Spirits. | Beer. |
| England - - - - - - - - | .6 | .9 |
| Scotland - - - - - - - - | 1.71 | .26 |
| Ireland - - - - - - - - | 1.29 | .44 |

Accepting these figures as correct, England stands out well as a temperate country, while the native land of Father Matthew is considerably in the rear.

Further on, M. de Flaix asserts :—

1. That alcohol is a food-stuff, whose consumption depends directly on climatic exigencies. Climate is the law of alcohol.

2. Alcoholism is the abuse of an article which is necessary, but which is difficult to control.

Finally, M. Flaix winds up by insisting that, on the whole, alcohol is a power for good, and though the abuse of it is a decided evil, yet such abuse is "the exception, it must be said, and, as statistics demonstrate, the very great exception."

"The vice of man resulting from the abuse of an element of prosperity and progress should not react in any way on the element itself."

# FOOD, AND ITS RELATION TO THE HUMAN BODY.

By H. C. Bartlett, Ph.D.

---

The relation of food to the animal body offers for our consideration that connecting link, which is nothing less than the chemical and structural development of one into the complex organism of the other.

Organic matter is never really quiescent : molecular change may be the work of ages, as is demonstrated by the gradual formation of coal from plants, or it may be instantaneous as in those rapid decompositions termed explosive ; but its transformation is continuous, and the entire series of metamorphoses recur according to the natural laws of rotation. To render this more clear, it must always be borne in mind that the elements of food are the elements of the body, and are themselves indestructible.

Taken at any point of the inevitable cycle, the entire series of change of form may be traced with considerable accuracy, and, if followed out, will logically lead us back to the original starting point. This being the case, it matters little where we commence our investigation, or whether we proceed onward with the development of the molecules into the highest types of organization, or retrace the splitting up again of these organizations into their elements.

The more familiar portion of this endless chain is before our notice in the substances which form our daily food. Complex as is the infinite variety which the word Food suggests, its relation to the human body is, primarily, extremely simple ; all these substances are *food* only to the exact extent that their constituents are chemically transferable to the bodily juices and tissues.

The constituents we have to deal with are alike those of the human frame and the components of alimentary matter. These are the nitrogenous, carbonaceous, and mineral, proximate principles, and water.

Food analysis has determined the proportions which these constituents bear to each other in the common articles of diet ; physiological research enables us to estimate the requirements of the

human frame under various conditions of life. The conjoint investigation, therefore, is the subject before us.

From the most careful experiments of Dr. (now Sir) Lyon Playfair, and of the late Dr. Edward Smith, and from a series of trials I have made with the same object, it seems advisable to give the generally deduced essentials which all diet should contain.

I conclude that an average adult, performing moderate labour, must be provided daily with not less than 4 ounces of dry nitrogenous matter, the whole of which must be proteinaceous, that is to say, exclusive of gelatin. The nitrogenous portion must be combined with at least four or five times its weight of carbonaceous principles, of which one-tenth consists of fat ; but it is preferable to double this latter proportion.

Of mineral matter 300 grains must be carried with the food, and vegetables or fruit containing salts of potash must form an integral part of the diet.

At least half of the food must liquid ; and the entire amount of water taken in twenty-four hours, including that contained in what is usually considered as dry food, must generally amount to at least three pints.

Lastly, a sufficient variety in the nature of the food must be regarded as essential to the maintenance of appetite.

Women require, on an average, about one-fifth less than men ; growing lads, about the same as women, or rather more ; boys and girls from eight to twelve years take about two-thirds of a man's diet ; and not much less than half of the equivalent of a woman's diet must be given to even younger children.

The functions of assimilation are infinitely more active in children than in adults. They have not only to repair the daily waste of tissue occasioned by the attrition of existence, but the want is augmented by the necessity of constant enlargement of the tissues in growing. Digestion, if the food is suitable, is much accelerated, and nourishment is required at shorter intervals. The actual flesh-formers are plainly of the greatest importance in children's food, but the carbonaceous matters are scarcely less necessary, as from them is mainly evolved the animal heat so essential in childhood, and the transforming power whereby structural development is accomplished.

Milk contains an admirable combination of these essentials in the casein, butter, sugar, and salts, of which its solids are composed, and almost all children evince an instinctive fondness for milk, cream, and sugar in any form.

Of late years patient inquiry has shown that milk, to be perfectly reliable food for infants, should be fresh as possible, so as to prevent the ingestion of lactic acid into the infantile stomach, which is naturally sufficiently prone to excite lactic fermentation. Lactic acid is undoubtedly neither unwholesome nor always objectionable food for mature assimilation ; but as milk, in becoming sour, is almost invariably found to contain the spores of milk fungus, a great danger is incurred by feeding children on such milk, while the fungoid growth is generally arrested or destroyed by the more powerful secretions of adult life.

I have specially dwelt upon the merit of milk as a food because it contains, as far as we yet know, everything that is absolutely essential to form and nourish the animal body. It is, therefore, the most perfect type of food. We have in milk, as I have just stated, casein, butter, sugar, and salts, and there is also a minute quantity of albumin contained in all milk. In other articles of animal food we find, in addition to these compounds, fibrin, syntonin, gelatin, and certain salts not found in milk, and the difference between vegetable and animal foods is, to a great extent, more than real. Most of the approximate principles in both are much alike in composition, and the albumin, glutin or fibrin, legumin or vegetable casein, and mineral matters, are almost undistinguishable, chemically, whether of vegetable or of animal origin. I wish to point out, however, two points of partial divergence, namely, that no vegetable proximate principle is strictly analogous to gelatin, and that no animal compound answers to the structural cellulose of vegetables.

It is the more remarkable that the immediate economy of both these substances as food is somewhat doubtful, and, although the first is sufficiently easy of digestion, its flesh-forming value is very small, while its other specific dietetic functions (if it has such) are not yet by any means well defined. Cellulose, on the other hand, is proved to be almost absolutely indigestible in the human stomach, and it can only be assimilated by the vicarious process of feeding

upon it herbivorous animals, whose digestive functions are specially adapted to that end, and then eating their flesh formed from it.

The analogy between the vegetable and animal proximate principles is strongest in the nitrogenous group before alluded to, and it may be argued that this seems to imply that the exact proportion or quantity of flesh-forming constituents is of the first importance, and in direct results this is undoubtedly the case. The flesh-formers of food contain within themselves a certain proportion of all the other necessary compounds; life can, therefore, be maintained for a lengthened period upon food which is mainly proteinaceous or nitrogenous. But, at what expense? Nature appears to have proportioned the various constituents of our food in such a manner that we have but little inducement to outrage propriety of diet by adhering to one particular kind to the neglect of the rest.

Variety is so agreeable and instinctive a desire, that were we confined to a uniform food, no matter of what sort, we should inevitably suffer. This is so true that when the most perfect form of artificial food,—bread,—is alone obtainable, an invariable loss of weight is experienced within a few days. From communications which I have received from various prison authorities, I find that bread and water diet is strictly prohibited for a longer period than three days. Death itself is said to supervene when such food alone is persisted in for more than a month.

The experiments of Magendie proved conclusively that animals fed solely upon the crude glutin of wheat, which is almost pure protein, lived for more than three months without great distress. Upon the pure fibrin of meat, most of the dogs experimented on supported existence for nearly two months, but upon white of egg,—nearly pure albumin,—starvation was much more rapid, after a few days' continuance.

Then came, to my mind, the most important experiment of all upon the nitrogenous substances. Beef tendons, which are natural combinations of fibrin and gelatin containing a very small quantity of albumin, were given in unlimited quantities; but the dogs evinced no preference for this over-pure fibrin, and the result showed that the nutrition of the fibrin was lowered by the amount of gelatin present. Life was not prolonged to the same extent as in

the trial of pure fibrin. The carbonaceous substances were also given for a time as the only food of the animals experimented on, and death from starvation occurred almost as quickly as when nothing but water was administered.

It is remarkable that the determination of the flesh-forming principles of food should have been left for the chemists of the second quarter of the 19th century, but it is more astonishing to find the general bearing of this simple and undeniable discovery hardly yet properly understood. Of course, I merely allude to the fact that general education has not till lately included proper teaching on the subject.

We find nurses and attendants pinning their faith to the recuperative powers of arrow-root and beef-tea, and trainers for athletic sports believing in the administration of half-raw rump steak in unlimited quantities, to the exclusion of everything which would assist it to digest and become assimilated.

The believers in the nutritive qualities of beef-tea and arrowroot are not yet extinct, and I do not wish to destroy their faith more than is warranted. I will freely admit that in some cases of utter prostration, where exertion is impossible, life has been maintained upon a beef-tea diet for many weeks, but it must be remembered that a liquid food of this nature is admirably adapted to be quickly taken up by the circulation, and to soothe the nerves and perhaps render them all they specifically require. But little or no flesh will be put on the almost quiescent muscular fabric, no addition to the power of muscular contraction will answer to the volition of the nerves, and life will have been preserved, indeed, somewhat at the expense of bodily strength. Nothing can show more clearly than this the folly of giving broth, beef tea, or soup to infants or young children as substantive food. Their requirement is of the most general character, and whatever constituent of food usurps a more than due proportion of appropriate diet is positively injurious to that extent.

Far worse than broth is the substitution of pure starch, such as arrow-root, or what is termed cornflour for the natural flour of wheat or some other flesh-forming cereal. The errors made in this respect are perfectly appalling.

To elucidate the nature of this mistake, Professors Fick and

Wislicenus undertook the ascent of the Faulhorn, sustained by no other food than arrow-root, sugar, and fat. They observed that the nitrogen secreted during the time was fully one-third less than was obtained from ordinary diet.

Dr. Edward Smith relates his experience of eating arrow-root, merely boiled with water, as substantive food, and graphically narrates the *malaise* of stomach which he suffered in consequence.

Some years ago, the matron of an establishment for destitute children at Manchester, was taken before the magistrate and charged with causing the death of one child, and exposing several of the other children to the imminent danger of starvation. The symptoms were unmistakeable,—fearful emaciation, partial congestion of the brain, and a peculiar ulceration of the cornea of the eyes. Struck by the apparent truthfulness of the matron's statement, that she had given the poor little things as much as they would eat of "corn-flour," a gentleman forwarded to me a sample of the same description as that said to have been provided. This I analysed, and found to be almost absolutely pure starch. It therefore contained, practically, no flesh forming constituents, and but a mere trace of nerve-stimulants in the form of salts. This somewhat surprising fact was made public, and the woman's story was so far corroborated that it was proved she might easily have administered as much of this miscalled food as the children could eat, and yet unconsciously starve them as effectually as if no food had been supplied. The ulceration of the cornea coincided exactly with the experiments of Magendie; all of the animals, which he fed only on carbonaceous substances, presented this symptom; and I am informed that sailors experience serious affections of the eyes when they have, through deficiency of supplies, to fall back exclusively upon rice or other insufficiently nitrogenous food. This occurs so frequently in the long voyages of the rice-laden vessels, that the cargo is known among the sailors by the name of the calamity which befell Elymas the sorcerer.

Another possible form of mistake in depending upon too large a proportion of the carbonaceous constituent may occur with cream. Milk diet is of such frequent and invaluable assistance in re-establishing wasted muscular and nervous tissues, that it is not improbable that cream may suggest to many persons a superior and concentrated form of the same thing, a readier and more powerful

(if more expensive) means of hastening the result. Such is not the case, however. Cream contains so little flesh-forming matter, and salts, compared with its butter (3 per cent. of the former to 26 per cent. of the latter) that it is by no means equal to ordinary milk as a flesh-producer; while the large quantity of butter prevents an adequate quantity from being consumed.

Beer, when properly brewed, is to be regarded chiefly as a nerve stimulant and carbonaceous food. In no sense is it to be considered as muscular pabulum. Stout may be said to be "nourishing," but it should be well understood to what extent the term really applies. Wine of all kinds comes into the same category, including that article of faith, "good sound port."

I have now enumerated many carbonaceous articles of food that have been for many years regarded by the less specially informed as "strengthening diet;" meaning by that, food, liquid or solid, which directly contributes to the weight, size, and robustness of the partaker. I wish to prove that this is not exactly correct. Liebig asserted that the starchy matters of the food were converted into fat which was either consumed in the process of respiration or stored up in the adipose tissues for future use. He also affirmed that the fatty portion of our food was directly utilised in keeping up the animal heat, being consumed in the lungs. Latterly, it has been admitted that fat may not improbably pass unchanged into the adipose tissues, and that a certain proportion of it, together with the starchy matter, is so amalgamated with the nitrogenous and mineral portions of the meal as to render it doubtful in what way the carbon has been burnt up and ultimately given off as carbonic acid. This process is indubitably effected by the lungs to the extent of some 3,000 grains in the twenty-four hours, but about 100 grains of carbon, in the form of carbonic acid, are thrown off by the skin in the same period, and it becomes a question of great interest to determine how far other oxidation occurs, independent of the action of the lungs. All the tissues of the body are constantly wearing out and giving off their effete matters, and it follows that these have to be replaced. As I have already observed, the proteinaceous or nitrogenous constituents are equal to furnishing all the wants of the body; the fatty, saccharine, and starchy compounds could therefore be omitted, but to utilise to the best

advantage the protein of the food, the carbonaceous principles must for convenience be judiciously added.

If this be correct, and I am following Professor Huxley's *dictum*, it must be apparent that arrow-root, cream, beer, and port are but convenient addenda, and to treat them as capable of replacing substantive food is not an infrequent, though lamentable, error. To prove my case, I will mention the result of some experiments I tried upon myself to illustrate the direct effects of attempting to live upon non-nitrogenous food, and, afterwards, the result of adding gelatin to the carbonaceous matters. I must premise that the articles enumerated were as free from nitrogenous components as they could easily be obtained, but I am aware that a small quantity of flesh-formers remained in them.

On May 5th I took 8 ounces of corn-flour boiled in water and mixed with butter, sugar, and a glass of sherry; some arrow-root biscuits, made with cream, but no flour, and drank a pint bottle of stout. For supper I mixed more corn-flour with cocoa butter and fried it, liquifying this not unpleasant novelty with two glasses of port. I cannot say that I experienced much inconvenience on that day, but I awoke next morning with a strong desire for something more substantial. I, however, mixed arrow-root with cream and sugar for breakfast, and pushed past lunch time with some more biscuits. At dinner I fairly broke down, and, I am sorry to say, spoilt the experiment by eating a slice of meat. The 7th of May saw me penitent, with the determination to be more resolute; this time I added calves' feet jelly to the *menu*, and again reached bed-time without severe discomfort. The next morning was as before, but more unendurable, and neither wine nor beer sustained me from such sinking sensations as I hope never again to experience. On the 8th I was carefully weighed and found that I was between three and four pounds lighter than before the trial.

It may be asked what difference I experienced on the addition of the gelatin contained in the calves' feet jelly? I can only say that my impression is that I was less oppressed during the five or six hours following the meal, but I am convinced that re-absorption of tissue was not arrested for any longer period.

This brings me to a point in the relation of food to the human body, which is more peculiar to it than is the relation of the food of

animals to their development. Few animals are omnivorous, and almost all of them are capable of existing without deterioration upon a very limited selection of food. More than this, most beasts have some special article of food better adapted for their requirements than any other. The reverse is the case with man. No single food is long endurable, and the repugnance excited by a long continuance of a very small selection of viands has been known to prevent the ingestein of a sufficiency to maintain health. All our instincts are in favour of variety, and therefore variety is our necessity. Without doubt, the advantages of this natural law can be demonstrated most conclusively ; the fact is so self-evident that it would be waste of words to attempt it now, but the advantages which are so manifest are not without their attendant obligations upon us.

I take it that animals are endowed with their strong instincts and predilections for a few special foods, because they could not be trusted to discriminate among a multiplicity of aliment. I also argue from this that we are more bound to use the discrimination which is necessary for us to select from the multifarious sources of nutrition which are, or should be, open to us. I do not mean that we should select a few articles only which we believe to be particularly grateful to us, or that we should be satisfied with tabulating a list of what are esteemed as wholesome and easily digestible foods. My view of the discrimination which is entailed upon us as our prerogative is, that we should arrange *each meal* so as to contain its due proportion of protein, carbonaceous, and mineral food, liquified to that moderate extent which experience has pointed out as most suitable. The reason why attention should be particularly directed to this requirement is that an ill-selected meal cannot, as a rule, be rectified by the next one. If the due proportion of protein be neglected, the starchy and fatty matters pass from the stomach and may never be properly digested, or assimilated, and, on the other hand, a meal which is composed mainly of animal food is liable to be much wasted as nutriment ; simply because it is not mechanically sub-divided by the presence of starch in the stomach, so as to present the full surface of its fibrils to the action of the gastric juice and other solvents. The human digestive organs are not capable of mixing in any degree the components of two different meals taken at several

hours apart ; it is therefore incumbent upon us to make each meal complete in itself.

The bearing of my experiments has been to the effect that starvation of a particular tissue is quite possible, if a proper mixture of constituents is not maintained in the daily food, and this is more certainly the case, when the protein and mineral constituents are wanting for any length of time. I can quite believe that fat may be deposited contemporaneously with a depletion of the nerves, and we know that flesh may be laid on while the adipose tissues are being reduced to the minimum. We are also aware that some otherwise well-nourished children fail to secrete the calcium phosphates necessary to produce a due development of bone, and in more than one instance this has been directly traced to the habitual deficiency of the mineral constituents of their food.

Advantage has been taken of this peculiarity to train athletes up to the extremity of muscular development, without leaving a superfluous ounce of fat upon the muscles, and the converse of this process is employed in artificially fattening the ladies of Turkey and China to that state of *embonpoint* which, in those countries, is supposed to constitute the perfection of grace and beauty. Neither of these conditions is commonly desirable ; a perpetual training would in time wear out the strongest constitution, and I have heard men, who could walk a thousand miles without resting for more than twenty minutes at any one time, declare that the punishment of the previous training was greater than the strain upon the system incurred in accomplishing the task. In the same way Turkish and Chinese obesity entails discomforts of so obvious a nature that this particular folly has not even yet been adopted here by the fashionable world. Errors of diet arise chiefly from the want of knowledge which a slight acquaintance with the elements of physiology and the chemistry of food would prevent. If, in schools, it can be impressed upon the minds of the pupils that the body it not only supported and nourished by food, but that the body is nothing more than slightly transformed food *plus* life, the attention may be riveted upon the fact. We might then regard food, not as a gratification of appetite, nor as a necessary evil, according as our digestive functions are healthy or diseased, but as a constituent of our future selves.

A study so replete with interest as the successive changes from gaseous metalloids to growing plants ; from plants, directly or indirectly, through the animal kingdom, to our very bodies, is so wondrous as to become almost enthralling. And, when we can complete the cycle by learning how the worn-out tissues and waste products of our bodies, and, eventually, our bodies themselves, return into those same elements, the scope of our inquiry is enlarged in contemplating the infinity of recurrent causation.

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## HOW TO BREATHE PROPERLY.

By W. Abbotts, M.D.

In one of *Punch's* inimitable sporting sketches a small boy, mounted upon a correspondingly diminutive, shaggy pony, is cautioned by an adult follower of the chase as to being careful in his movements, when actively engaged in pursuit of the fox. The scornful and indignant rejoinder, "Teach your grandmother to suck eggs," shows that the daring urchin considers it quite superfluous for any one to tender advice to him. In a similar manner, some readers will, I fear, think that it is unnecessary for me to deal with a matter of which all may be supposed to have a complete knowledge.

It is now many years since my esteemed friend, George Catlin, the celebrated traveller amongst the North American Indian tribes, brought out a very interesting book, entitled, "The Breath of Life ; or, Mal-Respiration, and its Effects upon the Enjoyments and Life of Man," which was published by Messrs. Trübner and Co. I had the pleasure of assisting Catlin in connection with this work, especially as regards the physiological portions. At the concluding page of this remarkable work, which was profusely illustrated by his graphic pencil, he made the following remark : "If I were to endeavour to bequeath to posterity the most important motto which human language can convey, it should be in three words, '*Shut your mouth !*'"

As he further on observes, in the social transactions of life, this caution might have its beneficial results through being accepted as a

friendly advice, or, on the other hand, it might be received as the grossest of insults. It was not, however, from a social point of view, but from a sanitary one, that he regarded this subject, and this article will have similar limitations.

Catlin, during the many years which he spent in travelling amongst—or, rather, it should be said, in living with—the North American Indians, was a very close observer of their habits and mode of living. Intending, originally, to follow a sedentary profession, his views were changed through the circumstance that premonitory signs of consumption began to show themselves; in consequence of which he determined to abandon the homes of civilisation, and to betake himself, in quest of health and vigorous adventure, to the then unexplored parts of the North American continent, where he spent many eventful years (about a quarter of a century) amongst the native tribes, very few of whom had ever before seen a white man.

Being gifted with keen powers of observation and strong reasoning faculties, he was not long associated with the "children of the prairie" before he noticed the total immunity of these aboriginal races from consumption, and from many other diseases which are such prolific causes of premature death in civilised communities.

Much of this freedom from sickness was, doubtless, due to the simple and temperate habits of the Indians, who were then uncorrupted by the dissipations and vices subsequently introduced amongst them by white men. But Catlin found it requisite to go further in order to arrive at a complete explanation. At length, he came to the conclusion that the rareness of mortality of their children, and their immunity from consumption and various chest and throat affections, were attributable in a great degree to the universal practice followed by the Indians of keeping their mouths firmly closed, except when they were engaged in taking food or drink, or in speaking. This habit prevailed throughout all the tribes of North American Indians, numbering many millions at the period of Catlin's travels; now, there are scarcely as many thousands, owing to the destructive diseases introduced by white men, and the incessant war of extermination which was carried on against them.

Catlin's opportunities of seeing the bright side of the Indians' character, before bad whiskey, *alias* "fire-water," and semi-civilisation had corrupted many of them, always led him to sympathise deeply with their unfair treatment at the hands of the United States Government. In a letter which I received from him in 1869, referring to the then active and systematic persecution and extermination of the Indians, Catlin wrote as follows :—" The Government of the United States has always called them her '*red children.*' Is it not, then, an *infanticidal war* that is taking all their country from them by the sword and bayonet? History and posterity will mourn for these poor and ill-used people ; but, for the present, railroads must be made, and vagabond squatters must be protected, while, if the poor Indian fights for his rights, his victories are styled '*massacres*,' and '*extinction*' is assumed to be the only remedy."

But, to return to our subject. It is a noteworthy fact that there is no animal in existence, excepting man, that habitually keeps the mouth open, or sleeps with it open, and that as regards mankind, this unhealthy practice is generally confined to civilised communities. The North American Indians are so careful in this respect that the women are very particular in inculcating amongst their children the habit of keeping the mouth closed, from the earliest period of infantile existence, and after lowering a baby from the breast they carefully press its lips together before it falls asleep in its roughly-constructed cradle. The habit which is thus acquired at so early an age becomes permanent, and the benefit conferred lasts for life, as the individual adopting it is able to breathe, without danger or injury to the lungs, any air, no matter how cold or damp it may be.

In this manner, the "rough, untutored Indian" teaches a powerful though silent lesson to the civilised white man, who, ignoring the physiological hint conveyed in *Genesis*, chapter II., verse 7,—" And breathed into his *nostrils* the breath of life "—persists in inhaling chiefly by the mouth, which was never intended for such a purpose.

The mouth has its own distinct functions to perform, namely, in connection with eating, drinking, and speaking,—in other words, to serve as a means of ingress for food, and of egress for the sound of the voice.

On the other hand, the nostrils, with their beautifully-designed passages and their various recesses, lined by a highly vascular fibro-mucous membrane, are destined for the purposes of smelling (through the agency of the numerous branches of the olfactory nerve, distributed in the nasal fossæ,) and of *respiration*.

If this last-named fact were more widely understood and properly appreciated, we should have an immense diminution in the number of cases of sore throat, cough, bronchitis, consumption, and various other serious affections of the throat. Cases of temporary, often passing into permanent, deafness, would also be much less frequent than they now are. Both in private practice and amongst the patients attending different special institutions for deafness and throat affections, with which I have been professionally connected, I have for many years noted the coincidence between the habit of keeping the mouth open, and a peculiar form of deafness ; and I have no hesitation in asserting that habitually keeping the mouth open is a most fertile source of deafness, complicated with inflammation of the throat, or enlargement of the tonsils, particularly between the ages of ten and twenty years.

Caries and other disorders of the teeth would, I believe, be rare, as compared with their present frequency, if people breathed through the nose more, and through the mouth less. Whenever I see anyone evidently suffering from toothache passing along the street, glaring nervously right and left, with the air of a badly-used person, and pressing a handkerchief firmly against his mouth to prevent the passage of the slightest portion of air through his lips, I feel disposed to tell him how much better it would have been for him had he only practised breathing through the nostrils sooner. But then I recollect what Shakspeare wrote :—

> "There never was yet the philosopher,
> That could endure the toothache patiently ;"

and I go my way, keeping my mouth as firmly closed as the poor man's sufferings now compel him to keep his, deeming the occasion not a convenient one for putting his philosophy or equanimity to the test.

The reason for this great possible diminution of cases of chest, throat, and other now very common disorders, especially in the winter season, may be readily explained. When atmospheric air is

drawn into the lungs between the open lips it passes in so quickly that, being of much lower temperature than the lungs themselves, it causes sudden chill, and consequent irritation and inflammation, while corresponding effects may be produced, as regards the throat, by the contact of the cold air with its lining membrane, producing sore throat, enlarged tonsils, and such-like affections ; or, the cold air, passing along the Eustachian tubes to the internal part of the ear, may give rise to that form of defective hearing, which is commonly known as throat-deafness, and evidenced by dullness in the sense of hearing, noises in the ears, and other symptoms.

On the contrary, the risk arising from breathing cold, moist, and foggy air is either obviated or reduced to a minimum by inhaling through the nostrils. The air, passing more gradually towards the lungs, is elevated in temperature by its being brought into contact with the warm mucous membrane which lines ths different nasal passages, while numerous small impurities, such as fine particles of dust, are detained by the minute, vibrating, hair-like filaments with which this membrane is closely studded.

It is unnecessary to enter into elaborate anatomical disquisition upon this matter. My object has been to direct attention to an important, and, as I venture to think, much neglected fact, namely, that we should cultivate the habit of breathing through the nostrils, whether by day or by night.

Many persons, with delicate or diseased lungs, try in a clumsy, mechanical manner, and without considering the reason why the practice sometimes benefits them, to protect their lungs from the injurious effects of sudden chill by wearing respirators out of doors in bad weather. By checking the sudden ingress of cold air through the mouth, or by obliging the wearers to inhale principally through the nostrils, respirators may occasionally be of service. But, after everything that could be said in their favour, it must be borne in mind that these contrivances often impede the prompt removal of the products of respiration by the breath (hence, the frequent heightened hectic-looking flush in the face of any one who has worn a respirator for some little time,) while any advantage that they may chance to confer is less than would be obtained, if the wearers discarded the respirators, and merely kept their mouths

closed, except when they were engaged in talking or in taking their meals.

The habit of keeping the mouth closed, and breathing through the nostrils, is of considerable service to those who are exposed to unwholesome vapours, or who are brought into close relation with persons suffering from infectious diseases. In the latter case there are always myriads of particles, invisible to the naked eye, floating about in the atmosphere, and charged with the infection. If these are admitted into the mouth, they either pass direct into the lungs, or, becoming admixed with the saliva, are swallowed, and thus conveyed into the stomach. In both circumstances they are speedily absorbed into the system. But if, on the other hand, the individual who is exposed to the risk of infection keeps the mouth closed, and breathes only through the nose, many of these particles,—*fomites*, as they are termed in medical language—are detained by the minute filaments already described and are afterwards discharged with the nasal secretion. I am firmly convinced that if this plain fact were adequately appreciated by relatives, attendants, and others engaged about patients who are ill with infectious diseases, many valuable lives would be saved.

I need not dwell upon the injury done to the features by the habit of keeping the mouth partially open. This is sufficiently evident to every one, except, perhaps, to those who indulge in the practice; while the "gaping fool" of our English writers, the "*gobemouche*" of the French, and corresponding phrases in other languages, show that the relation between cause and effect is universally recognised with respect to this habit.

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## FRUIT.

By Dr. Alfred J. H. Crespi, of Wimborne,

*Sometime Editor of the "Sanitary Review."*

Is there a lovelier sight than an orchard laden with golden fruit at that time of year when the rapidly shortening evenings, and the falling temperature warn that the short, uncertain summer of this

northern latitude is swiftly approaching its close? Stay, there is a sight even more beautiful—an orchard in the mild climate of Devon or Somerset at the end of April or beginning of May, when every spray is a mass of delicately tinted white blossoms, and when the promise of the year hangs in the balance: a sharp night's frost, a stiff gale, and the blossoms are cut off, and the ground strewn with their withered remains, tells the gardener that his labour and thought will have no return, and that he must be content with another year's waiting for better times. In the rich retentive clays of Herefordshire and Worcestershire, the hedgerows, the gardens, and the fields groan beneath their precious burden in a mild September, and it is hard to believe that those golden spheres are, too often, like the apples of the Dead Sea, beautiful and tempting to the sight, but bitter and disgusting to the taste. Ah! were only the skies more serene and the temperature higher, September on the Welsh Borders would leave nothing to desire; unfortunately the black clouds, the falling leaves, and the chilly air make one long for lands where the heavens wear a more smiling face.

The earlier part of my life was passed in a small village a few miles from Birmingham. The house where I lived had large fruit gardens attached to it, besides a flower garden and a small paddock or two, and as I was the only child, and there was a good deal of fruit to which I had free access, it was natural that the appetite for fruit, which in common with children, I possessed, should be so well cultivated by long indulgence, that, though childhood is long past, there is no food so agreeable to me. When a very little boy I tried my hand, not at first successfully, at the cultivation of fruit, and during many leisure hours learnt something of this useful art. I was too young to understand the meaning of all that passed before me; but looking back on those distant days, I can recall many facts that would be of immense service to me were good fortune to put a large garden once more in my way. To some of these lessons I will direct the reader's attention.

The importance of a constant and liberal fruit supply has not received the attention it deserves. Of late years much more land has been devoted to nursery gardens and orchards, and the yearly returns are satisfactory in shewing the large increase going on in the area so employed. People too are beginning to understand that

the diet can be agreeably varied by the addition of a considerable amount of fruit, and at last there seems a chance that more fruit will come into the markets of the great towns at any rate, partly from abroad and partly from our own country. It is a drawback that the small country towns and little villages, where fruit and vegetables might be looked for in profusion are precisely the places where the fruit lover, unless rich enough to have a large garden, a most costly luxury, must not live. In August, 1886, while the markets and shops of Birmingham were full of plums at two pounds for three half-pence, and in London the wholesale prices did not, it is said, repay the growers for the expense of sending the fruit up, much less for the trouble of producing it, in Dorset prices were eight times as high for fruit of inferior quality. The railway companies, moreover, charged nearly prohibitive rates on fruit sent from the plum districts of Worcestershire, the carriage from Pershore to Wimborne (a large and important Junction) actually amounting to three half-pence the pound.

The craving of children, and grown up people too, for fruit would be sufficient to prove that man's natural food is fruit. Why, it is thought venial in schoolboys to break into an orchard to get a few apples and pears. And yet, in spite of its wholesomeness. pleasant flavour, and tempting appearance, really nice fruit is, taking the country at large, comparatively scarce and dear. How is this ?

We must admit, I am afraid, that our climate is, to some extent, against us. How often did I, when a child, lament the small return which unfavourable weather enabled me to obtain from carefully cultivated beds and favourite fruit trees. How much annoyed I have more recently been when the kidney beans, peas, currants, and flowers in my small garden at Edgbaston have been nipped by untimely frost, or deluged with rain just at the most critical time of the year. While, as for apples, pears, and cherries, they are everywhere uncertain ; one year you gather ten or twenty pounds of cherries from a tree which next year yields one pound. In the northern and midland districts of the island it is questionable whether any gardener ever found all his fruit crops really successful in the same summer. This uncertainty of return is one of the most serious drawbacks to largely extended fruit culture in England. Many a despairing cottager, worn out by cruel disappointment,

consigns his fruit trees to the fire, and plants his gardens with potatoes, cabbages or broccoli. In the south of England matters are different ; there the climate is milder, the return larger, and more to be depended on.

The country cousin, who just at the right time wanders through the large market-halls of London, Birmingham, and Manchester, where the produce of the world is brought together for the benefit of the fortunate citizens, sees what fills him with envy—fruits from all climates, of the most splendid description, and at prices of which he has no experience in his own neighbourhood. But what are the supplies of English markets compared with the abundance of the Parisian ones at the same season ; although I must confess that French prices are not lower than ours, while as for the American markets the profusion there throws English and French abundance into the shade. To walk along a New York street on a dry, warm, sunny November morning, and buy large, rosy and thoroughly ripened apples from the vast mounds piled up on the street stalls, at one cent. apiece, is a pleasure, the memory of which long remains to delight the traveller. The markets of Richmond, in Virginia, are even more attractive at that most beautiful season of the American year, but then they tell of proximity to and command of semi-tropical supplies that can never be brought near our shores.

We cannot hope to grow cheap fruit, in the abundance that I should like to see, at any rate north of the Thames, but some improvement in the present state of things is possible. With greater care in the selection of trees and with less ambitious gardening our fruit supply could in ten years be vastly increased. Let me explain my meaning. You go into the large gardens of Warwickshire, and what do you find ? Numbers of pear, apple, cherry and plum trees, which from the coldness of the climate, the poorness of the soil, and sometimes, too, from the kind of tree, bear little fruit. You find that gardens are over-stocked with trees that cannot be remunerative. In our garden there were, on walls of course, peach and nectarine trees and Channel Island pears. These trees were of little use and gave immense trouble. They sometimes blossomed freely, and then the walls had to be covered with large curtains moving on rods to protect them from night frosts. Six years out of seven a few miserable half-ripe peaches and two or three

dozen stony pears were the only return. One summer, it is true—the summer of 1855, I believe—the walls were one mass of rosy peaches, and that year I revelled in fruit few persons would expect to grow in the open air so far north. Once more, in 1858, there was a fair return. Now, it happened that on a north wall of the house there was a plum tree, not carefully attended to, as it was not of a highly prized kind, yet that tree was many times loaded with luscious fruit. In the well-kept but not very successful gardens of several neighbours were some plum trees, which in warm summers were laden with fruit ; but they were too fond of trying to grow rare fruits unsuited to the locality. Suppose that we had substituted plum trees that would bear for the expensive and troublesome pear and peach trees that were so much trouble and brought so little profit, the result must have been, in the long run, an immense gain. Were I so fortunate as to have an acre of fruit garden, no foolish vanity would induce me to cover the ground with trees unsuitable to the soil and climate: quantity rather than quality should be my motto.

Careful selection could do much. It is a common mistake to suppose that trees can be acclimatised. Every species of plant will bear a certain range of temperature, but it is impossible to extend that range. Many plants, originally placed in greenhouses, have done well when exposed to the open air, and have been cited as instances of acclimatisation. But the truth is that these plants could bear a lower temperature and a greater range of temperature than were at first supposed, and it chanced that the natural climate of the locality suited them perfectly. The Aucuba Japonica was a case in point, so was the Aponogeton Distachyum, an aquatic from the Cape, which thrives in the open air at Edinburgh, so too with the Araucaria Imbricata from Chili, and some Nepaulese and Japanese plants, but the Potato, the Dahlia, the Heliotrope, the Marvel of Peru, and the Tobacco are as sensitive to frost as on the day of their first arrival in Britain. Lord Bute has tried to grow grapes in the open air at Castell Coch, near Cardiff, for wine making ; his experiment must fail, though the selection of hardy varieties of the vine and maize might in time lead to a great extension of English agriculture : the same might be true of the Peach, the Pear and the Nectarine, hardy varieties of which might possibly flourish.

In the genial climate of the extreme south you find blunders similar to those of which we in our garden near Birmingham were guilty. Think of growing figs near Romsey, where the mean summer temperature cannot, in a favorable season, exceed 62.0° fah. Fancy that large walls are covered with vines which bear sour and small fruit, rarely eatable. With a little more common sense the sunny gardens of Hampshire and Dorset might be stocked with fruit trees that would do well, and not have their best sites wasted in growing, or perhaps it would be more correct to say in trying to grow, grapes and figs. These two counties are fortunate in having warmer summers than farther north, and much more sunlight, but much of the land is a poor gravel or sand, and the orchards, which, in many districts are small and neglected, are greatly inferior to those of Hereford, Worcester, Gloucester, and Somerset.

From what I have seen, it is certain that there is not a garden in England, Ireland and Wales—of Scotland I know little—that might not be made fairly remunerative. But for this, two rules should be borne in mind—only to cultivate trees adapted to the climate and soil, and to select good sorts. Take currants, a very homely illustration. Generally speaking, black currants are not so profitable as red or white ones, and are not such favourities at table, hence the former should give place to the latter, especially in small gardens. More important still there are countless profitable varieties of red and white currants. You will find trees that always bear well, and have ten, twelve and fourteen large berries on each bunch, while other kinds bear badly, and do not average more than six or eight small berries to the bunch. Why not exercise common sense in the matter, and get sorts that can be counted on to do well? Look, again, at rhubarb. Where is there a more profitable and wholesome vegetable? Rhubarb will grow almost anywhere; even in a town garden ten or twelve large roots will flourish, and supply stalks enough for a couple of pies a week for five months. Then take gooseberries; how well they bear if reasonable care be taken to get good sorts. While, as for apple and pear trees, in the western and southern counties they are profitable and easily attended to, provided always care be taken to get good kinds.

The neglected appearance of many of the Hereford orchards does not do credit to the enterprise and intelligence of the farmers,

The late Dr. Bull, of Hereford, whose labours in connexion with the Herefordshire Pomona—one of the most superb works on fruit culture ever given to the world—will not soon be forgotten, gave fruit-growing an impetus, the full force of which is hardly yet felt. He impressed upon the villagers the importance of selecting good kinds, of preparing the ground carefully, and of attending to the orchards systematically and carefully. Trees, while still vigorous at the root, often get covered with lichens and other parasitical growths that destroy all chance of any return, and which in time kill the tree outright. No plan is so simple and effectual as painting the whole tree carefully with paraffin, and in the following spring scraping the tree of the dead rubbish adhering to the bark; in a couple of years the tree, unless it has gone too far, thoroughly recovers; its bark becoming healthy again, and before long splendid crops of fruit repay the grower.

An excellent man, a gardener, for whose sterling qualities and great shrewdness I had great respect, had a favourite expression which he repeated a hundred times. It is, "Good sorts don't take up a bit more room than bad ones, and are less disappointing, and more profitable." Had I my way with the gardens of several friends of mine, I should grub up their old, badly-bearing fruit trees, and replace them with younger and better ones.

The fruit supply of this country must not be regarded as unimportant or as a mere luxury. Fruit might be eaten all the year through, and at nearly all meals, and would largely economise the meat cousumption. An Arab, it is said, will travel far on a pound or two of dates and a bottle of water. An Italian peasant will often display herculean limbs and strength, and toil like a slave under a burning sun on a few bunches of dried grapes and a liberal supply of olive oil. The Parisians consume fruit and some kinds of vegetables in quantities unknown in England. Why should we look upon fruit as a luxury when it might become a regular and large article of diet, when children, and grown up people too, might take considerable quantities every day, and substitute it for other foods, and then it would play an important part in the food supply of the household, and improve the health, while giving more pleasure to the eater than almost any other kind of food.

I am comparatively young; yet in horticulture vast improvements have been made since more than twenty years ago I first tried my youthful hand at gardening. We at that time paid a shilling apiece for strawberry roots that were a vast improvement on the older sorts, but which have in their turn been supplanted by better bearers. As for prize gooseberries and grape currants, in some rural districts they were only to be seen in the gardens of the wealthy; now every enterprising villager could have them. We were proud of gooseberries not weighing an ounce twenty years ago; now the same villages grow berries in bushels nearly double as large. The same is equally true of peas, beans and other vegetables. We had peas the pride of our simple hearts; but talking to our old gardener about peas, he informed me that "them peas are no good now, we've got better sorts." He showed me beans eleven inches long, a dozen of which would make a dish. All very unlike what I used to grow or see grown. Selection has been carried out with wisdom and prudence, and in a dozen years the art of horticulture has been revolutionised. There is no limit to what careful gardening can accomplish.

Let me once more recommend my readers, however small their gardens, to grow a few fruit trees, and have some rhubarb plants, but in all cases good, profitable sorts, adapted to the climate, the soil, and the situation. Do not try to grow Jargonelles, Peaches, Nectarines, and Marie Louises in Warwickshire and Staffordshire, unless you can afford to have glass. When you do your own gardening, and there is no great depth of soil, before planting your trees and roots make a large and deep hole, and put in plenty of manure and good soil. In my garden at Edgbaston I dug large holes, a yard deep, for my rhubarb plants, and put in plenty of manure and light soil, and I did not forget to water the rhubarb roots well with liquid manure. The result was that three or four persons could have lived on the rhubarb I grew. Any trouble taken in your leisure hours with a garden pays in improved health and in pocket. Industry and judgment can make five pounds of gooseberries grow where ignorance and idleness will not wring one pound.

Fungi or mushrooms, as they are more commonly called, are not exactly fruit, but they can be treated with great advantage in a paper on Fruit. They are most wholesome and need not be dear.

Last September in the market at Hereford the common field agaric was selling at a penny, and occasionally at a half-penny the pound. The orchards and fields were at times white in places with them. In 1886 a curious incident happened, The famous Woolhope Club of Naturalists was early in October having its annual meeting at Hereford, and it is usual to have a public banquet—at the Green Dragon—when the members and friends gather together. The afternoon of the banquet Canon Duport, of Norwich, Mr. Cooke, the famous Fungologist, Capt. H. C. Moore, late of the Bombay Engineers, the Secretary of the Club, and myself were coming out of the grounds of Belmont House, where we had been calling, when we saw, near the drive, a vast quantity of the Lactarius Deliciosus, the most delicately flavoured, but unfortunately most difficult to cultivate of all our native edible mushrooms. We at once filled a large basket with the welcome spoils, and that evening, at dinner, the Woolhope Club had a rare opportunity of feasting upon a mushroom beautiful in appearance and tempting beyond all others to the palate.

I fear that fruit, looking at the trouble of growing it, is not so remunerative as some other kinds of garden produce; nor is it highly nutritious, unless eaten in large quantities. But then fruit is the wholesomest and most agreeable of all foods, and when ripe cannot do harm. A small town garden might be made a great source of innocent pleasure, and with a little intelligent management might grow more currants, gooseberries and apples than most of my readers would believe possible.

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*Injurious Consequence of Wearing Earrings.*—Dr. S. Morin, of Paris, in his work *On the Hygiene of Beauty*, makes a dead set against earrings. He quotes numerous cases in which erysipelas had proceeded from the irritation set up by them, especially when made of the baser metals; and he fully disposes of the once common fallacy that wearing them is good for weakness of the eyes. It is possible, he observes, that in cases of inflammation of the eyes, they might act as counter-irritants, but even if they did so they would make the lobe of the ear in a state of permanent ulceration, as this part, not being rich in blood-vessels, has only a low degree of recuperative vitality.

ROYAL PUMP ROOMS, LEAMINGTON SPA

# BRITISH HEALTH RESORTS.

## No. 1.—LEAMINGTON.

By Francis W. Smith, M.D.,

*Author of "The Saline Waters of Leamington."*

It is impossible to exaggerate the importance of embracing the favourable opportunities which present themselves to individuals and communities. Opportunity makes the General, and opportunity makes the Millionaire. There can be no question that the present is Leamington's golden opportunity. English Spas generally are rising in public favour. Many physicians and specialists, both in London, Scotland, Ireland, and the provinces, instead of exposing

their patients to the annoyance and fatigue of foreign travel, are very prudently recommending them to use our Mineral Springs, and it cannot be too often repeated that there is now no need for invalids to run the risks and undergo the inconveniences and discomforts of a journey to the Continent in order to drink Mineral waters. We have as good Saline Springs in Leamington as there are anywhere. In our "temple of health," those who are sick may rest assured of finding relief, and often a cure in many of "the ills that flesh is heir to," and it will be well if patients, who are wearied and worried with the rush to Homburg, Marienbad, and Carlsbad, and the fleecing and flaying experienced at these places, would take this to heart.

Like many health resorts which have risen into notoriety, Leamington, in its early days, consisted of a few thatched cottages. It cannot boast of great antiquity, nor, like Royat and Dax and half a dozen other Continental Spas, claim that Julius Cæsar was cured of his rheumatism by frequenting its baths and drinking its waters; but still it would appear that the healing virtues of our Mineral Waters have been known and appreciated in the immediate neighbourhood, and even throughout the Midland Counties, for hundreds of years. As far back as 1586 mention is made of the Saline Springs of Leamington by Camden, and from that time to this they have had "their ups and their downs." Late in last century, greatly through the fostering exertions of Mr. William Abbotts, (the great-grandfather of the editor of this magazine), the cottages began to give place to large houses; and early in this century, streets, hotels, baths, and mansions followed in quick succession. Hither, by the magic spell of a great physician, patients flocked by thousands, drank the Natural Mineral Waters, and went away cured. Who is there that has not heard of the great Dr. Jephson? He reigned supreme in Leamington for half a century and attracted invalids from all parts of the world, I may say,—nobles and commoners, gentle and simple, by his extraordinary power.

The caprice of fashion, and possibly the facilities afforded for travel by steamboats and railways have drawn people away to the

Continent, but we have every reason to believe there is now a backward wave in our favour.

Royal Leamington Spa, including the residential suburbs of Milverton and Lillington, with a joint population approaching 30,000 inhabitants, is situated in the middle of "leafy" Warwickshire.

The borough stands at 190 feet above the sea level, and its situation is one of great natural beauty.

It is often pronounced the prettiest and cleanest town in England, and by this appellation it is well-known in America. It is built upon a regular plan, with wide and open streets, which in many instances are bordered with chestnut and lime trees, and these impart to the place the aspect of a German Spa.

Hygienically considered, Leamington ranks well, and for the number of its population is one of the healthiest towns in England.

It is blessed with an abundant supply of pure water, derived from an artesian well, of which it is said by Dr. Tidy that "as a dietetic water it is in every way of excellent quality, and for wholesomeness leaves nothing to be desired."

The borough has a pattern system of drainage. The sewage matter is pumped up to a farm, situated some miles from Leamington, and is considered a model of its kind. The sewers have numerous ventilators and are frequently flushed, thus insuring a healthy sanitary condition of the houses. All these matters of detail help to make it a high-class health resort ; and when I say that the death rate from all causes for the last three years averaged only 15.24 per 1,000, and that from zymotic diseases during the same period 1.1, I think it will bear favourable comparison with other inland watering places of equal population.

The climate and temperature of Leamington may be described as equable, and not subject to great extremes. The annexed tables of comparison will give the reader an excellent idea of its general meteorological bearings.

The two tables embrace a period of ten recent years and are chiefly taken from Symons' British Rainfall.

METFOROLOGICAL TABLE.

| Places | Inches | Rainy Days | Observers |
|---|---|---|---|
| Leamington - - - | 30·2 | 176 | Jones, Whish, Field, Barnitt. |
| Great Malvern - - | 32·1 | 168 | Sandoe, Palmer, Mann. |
| Cheltenham - - - | 32·3 | 172 | Mackgill, Landsboro, Kay, Humphries, Kynaston, Tyrer. |
| Harrogate - - - | 33·5 | 161 | Coupland. |
| Tunbridge Wells - - | 34·0 | 158 | Miller, Townshend, Winton, Brentall, Buchanan, Siemens, Royal Meteor. Soc. |
| Bath - - - | 35·3 | 180 | Barter, Russel, Stokes. |
| Clifton - - - | 39·1 | 177 | Burder. |
| Ilkley - - - | 39·9 | 200 | Dymond, Hainsworth, Call, Scales, Richardson. |
| Matlock Bath - - | 41·2 | 176 | Chadwick. |
| Buxton - - - | 53·4 | 196 | Sykes. |
| Average - - | 37·1 | 176 | |

| | Deg. Fahr. |
|---|---|
| Buxton - - - - - | 45·2 |
| Leamington - - - - - | 48·0 |
| Cheltenham - - - - - | 48·3 |
| Clifton - - - - - | 48·7 |
| Torquay - - - - - | 49·8 |
| Bath - - - - - | 50·3 |
| Bournemouth - - - - - | 50·3 |
| Llandudno - - - - - | 50·5 |

Loudon says:—"Leamington, from being situated at a distance from the coast, and in the midst of a level country, is exposed neither to sudden gusts of wind nor to frequent rains, which a mountainous neighbourhood so constantly attracts. The temperature is more equal than that of the greater part of the inland watering-places in the country. The highly cultivated state of the soil around the town, entirely free from morasses, with the numerously scattered woods and rivulets, contributes to its being one of the most salubrious spots in the inland counties."

The climate of England is well-known to vary and to be uncertain, no matter in what part people live. That of Leamington will seem, from the foregoing tables and quotation, to be one which well admits of its being a place of permanent residence. The fact that it

has become so speaks for itself. And certainly, so far as taking a course of the saline waters goes, this may be begun and carried on at any time of the year, which cannot be done in the more northern spas of Scotland and England, or in nine-tenths of the Continental ones.

Dr. Hermann Weber, who is the greatest living authority on mineral spas, observes: "We can see no reason why Leamington should not again become a much frequented and useful watering place, the more so as in many instances it may be resorted to *in early autumn or even winter*, on account of its great mildness of climate compared with Continental spas." Although in the spring, summer, and early autumn, patients look for most benefit because they can bathe without the same risks of taking cold, still, there is no doubt but that more come to Leamington in the winter now than formerly, for "courses" of the mineral water and for the baths. It is seldom they cannot find three or four days in a week genial enough to bathe in, and in this respect it is more like Bath than any other British watering-places.

I have quite recently had an analysis made of all the mineral waters at present in use at the Royal Spa, but as all are saline and more or less alike, I think my object will be gained by giving that of two—namely, the Pump Room, and the Chalybeate Wells.

The following is an analysis of the *Pump Room Well*, by Dr. Meymott Tidy, M.B., F.I.C., F.C.S., Professor of Chemistry, Medical Jurisprudence, and Public Health, at the London Hospital, and Analyst for the City of London, made March 20th, 1885:—

| | Grains per pint. |
|---|---|
| Sodium | 36·35 |
| Magnesium | 2·33 |
| Calcium | 7·52 |
| Chlorine | 56·15 |
| Sulphuric Acid | 25·05 |
| Peroxide of Iron | ·25 |
| Silica | ·14 |
| | 127·79 |

*Chalybeate, the Public Fount.*—Analysis by Professor Brazier, made April 25, 1885. Chief gas is carbonic, with small quantities of oxygen and nitrogen. Alkalinity expressed as carbonate of calcium is equivalent to 1·12 per pint :—

| | Grains per pint. |
|---|---|
| Sodium | 32·67 |
| Magnesium | 1·53 |
| Calcium | 5·18 |
| Chlorine | 45·12 |
| Sulphuric Acid | 25·74 |
| Carbonate of Iron | 1·01 |
| Carbonate of Calcium | ·67 |
| Carbonate of Magnesium | ·03 |
| Silica | trace. |
| | 111·95 |

By combination, the following salts are distributed in these wells in varying proportion :—

Chloride of Sodium.
Sulphate of Sodium.
Sulphate of Magnesium.
Sulphate of Calcium.
Chloride of Calcium.
Carbonate of Calcium.
Carbonate of Iron.
Chloride of Magnesium.
Carbonate of Magnesium.
Bromide of Sodium.
Chloride of Potassium.
Carbonate of Sodium.
Lithium.
} Traces.

We have, in these waters, mineral salts which we can recommend as powerful remedies in the cure of certain diseases. They are such that we can, with a certain amount of nicety, explain their action. This is most important in mineral waters. They have a fixed strength, and we are thus enabled to prescribe them with accuracy. This cannot, I fear, be said of all mineral waters. It will be observed, on looking at the analysis, that the bases of the salts seem

to tend in one direction so far as the diseases go for the relief of which they are indicated. The chief bases—sodium, calcium, and magnesium—are all alkalisers of the blood, and as such are most useful in gout, rheumatism, gravel, and in a disordered state of digestion arising from excess of acidity.

Taken warm at the source, in the early morning, in quantity from ten to twenty ounces, succeeded by a gentle walk, and it may be a cup of tea or breakfast—the effect upon most people is a smart liquid purge, with a feeling of relief of weight from the abdominal cavity. When taken in less quantity (and it may be diluted with drinking water) the action is more of a diuretic kind. The "all-round" action, therefore, of Leamington salines is purgative and diuretic ; they are alkalisers and general blood purifiers. In dealing with a few of the diseases in which I find them most beneficial, I will, in as few words as this short paper will allow, run over the principal heads and modes of action in each. Take irritative dyspepsia, where there are fermentations of acids in the stomach, with constipation, eructations of gases from the same organ, palpitation of the heart, and other disturbances—the Leamington salines remove matters from the alimentary canal that are a source of irritation ; they prevent an accumulation of such matters as produce disturbances in other organs ; and they likewise neutralise the ferments of indigestion, and remove excesses by purgation and diuresis. In congestion of the kidneys they are most valuable. Independently of the "communications" anatomically, by which the kidneys may be relieved by purgation through the portal circulation, there is a much more important physiological relation between the two excretory organs (bowels and kidneys) ; for if the Leamington salines fail to purge, or purge but in part, they pass on to the kidneys, and act as powerful diuretics. They are chiefly alkaline in their influence on the blood and urine, but are also independently active as specific renal stimulants. In congestion of the liver a course of the Leamington salines relieves the engorged portal circulation, which lies at the circumference and between the lobules of the liver. At the same time, doubtless, some of the salts are absorbed into the blood, and excreted by the kidneys, which they

powerfully stimulate, and thus open up the urinary discharge, which is the second great channel of relief to the liver. In gout which has become chronic, Leamington salines are most beneficial. The excesses of urates and uric acid in the blood are eliminated from the system by a well-directed course of the mineral waters. In this way gout is relieved, and in many cases for the time cured, by the uric acid being alkalised by the sodium, magnesium, and calcium salts, and by the channel of excesses being diverted through the bowels and kidneys. In the same way chronic cases of rheumatism are relieved and cured when ordinary remedies have failed. Themselves alkalisers of the blood, they act upon the plasma indirectly by combining with the rheumatic acid upon the plasma indirectly by by virtue of their diuretic influence.

Sciatica, when mixed up with the gouty or rheumatic diathesis is frequently cured by these mineral waters—so too eczema, psoriasis, and many other skin diseases. In cases also of anæmia I have seen the most marvellous benefit derived by their use and the addition of some preparation of iron to the Chalybeate water. It has the effect, almost in every case, of emptying the bowels of fœlcal matter, improving the digestion, and leaving the tissues of the body in a healthier condition. In addition to the aperient effect generally and the hæmoglobin-giving power of the carbonate of iron, the chlorides (which are largely present) seem to me to stimulate the construction of anæmic tissues as a whole and retard retrograde metamorphosis.

Space will not allow me to explain how hæmorrhoids, pelvic congestions, struma, climacteric disorders, paralysis of some kinds, and degeneration of tissues and vessels, all more or less find antidotes in these salines. But such is the case.

*The Baths.*—During the last twelve months the bathing accommodation at the Pump Rooms has been vastly improved. The committee acting on advice given them by me, in the winter of 1884, resolved to renovate the baths and add new ones where necessary. This work has been admirably carried out by our intelligent Borough Surveyor, Mr. Normanville, and the baths are, for their size, everything that one can desire.

The various kinds of baths are reclining baths ; deep immersion baths, with lift crane and chair, for invalids and those who cannot walk ; needle baths of newest designs ; local and special douche baths ; ascending and descending douches, and wave bath ; vapour and shower baths ; a beautiful Turkish bath ; and a large tepid swimming bath 70 feet by 30 feet.

The Pump room, Town Hall, the parade, and several shops and private houses are lit with the electric light. Besides the many advantages, already mentioned, Leamington possesses admirable colleges and high schools for both sexes.

In conclusion, I think it will not be out of place to let intending visitors know that in Leamington will be found every kind of accommodation suited to their wants—spacious and comfortable hotels, lodging-houses, sunny, well-appointed, and clean—to say nothing of noiseless and easy bath-chairs and all manner of invalid appliances. For those who are well enough to enjoy out-of-door exercise, there is all through the winter months the noble sport of fox-hunting, which they may follow to their hearts' content. Leamington has for many years been the rendezvous of "mighty hunters." The country around, too, is fertile, undulating, and wooded, and abounds with objects of the greatest historical interest, for within easy access are Shakspeare's birthplace, home, and final resting-place at Stratford-on-Avon ; Warwick Castle, one of England's noblest piles ; Kenilworth Castle, a stately ruin associated with royal gatherings, silent gondolas, splendid tournaments, gorgeous banquets, and burly roundheads ; and other places of equal historical interest, such as Edgehill, Stoneleigh, and Coventry with its three church spires.

The following table, showing the comparative composition of the Leamington waters with those of similar saline and carbonated saline waters in some of the popular German and French spas (expressed in grains per pint), will be found useful.

TABLE.

| SPA | SOURCE | Sodium Chloride | Magnesium Chloride | Calcium Chloride | Sodium Sulphate | Calcium Sulphate | Magnesium Sulphate | Calcium Carbonate | Magnesium Carbonate | Iron Peroxide | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LEAMINGTON | - Pump Rooms - - | 84·8 | ·49 | — | — | 20·66 | 7·44 | 78 | ·04 | ·08 | 114·3 | With traces of bromide of sodium, chloride of potassium, carbonate of sodium and lithium. |
| | Grove's Well - - | 92·01 | 1·02 | 1·85 | — | 21·87 | 11·52 | 1·53 | — | ·25 | 129·96 | |
| | Aylesford Well - - | 68·63 | — | — | 12·82 | 17·58 | 7·20 | ·39 | ·15 | ·05 | 106·82 | |
| | Public Fount - - | 74·35 | — | — | 10·63 | 17·61 | 7·65 | ·67 | 03 | 1·01 | 111·95 | |
| MARIENBAD | - Kreuzbrunnen (Bohemia) | 16·32 | — | — | 47·55 | — | — | 4·98 | 4·16 | ·33 | 85·13 | |
| TARASP | - Great Spring (Lower Engadine) - - | 36·70 | — | — | 20.67 | 3·77 | — | 22·36 | 9·60 | ·25 | 141·55 | With bicarbonate of sodium in varying proportions. |
| FRANZENSBAD | - Salzquelle (Bohemia) - | 11·25 | — | — | 22.50 | — | — | 2·86 | — | ·02 | 47·81 | |
| ELSLER | - Marienbrunnen (Saxony) | 17·87 | — | — | 28·25 | — | — | 1·37 | — | ·43 | 55·06 | |
| ROHITSCH | - (Styria) - - - | — | — | — | 18·75 | — | — | 13·75 | 11·25 | ·07 | 51·32 | |
| BADEN | - - - - - - | 2 48 | 2·01 | — | 2·65 | 7·06 | — | 1·62 | — | — | 17·46 | |
| KISSINGEN | - Ragozci (Bavaria) | 55·88 | 2·91 | — | — | 3·73 | 5·62 | 10·17 | — | ·30 | 81·54 | With small quantity of chloride of lithium. |
| | Pandur - - - | 52·98 | 2·02 | — | — | 2·87 | 5·73 | 9·73 | — | ·25 | 76·04 | |
| | Maxbrunnen - - | 21·90 | ·63 | — | — | 1 32 | 2·27 | 5·77 | — | — | 33·31 | |
| HOMBURG | - Elizabethenbrunnen (Nassau) - - - | 94·6 | 7 0 | 6·6 | — | ·12 | — | 14·5 | ·25 | ·22 | 126·49 | With chloride of potassium. |
| | Kaiserbrunnen - - | 68·8 | 4·0 | 5·25 | — | ·12 | — | 8·8 | ·37 | ·22 | 89·86 | |
| WIESBADEN | - (Nassau) - - - | 65·61 | 1·85 | 4·5 | — | ·86 | — | 4·01 | — | ·05 | 78·30 | |
| SODEN | - (Nassau). Milchbrunnen | 22·1 | — | — | — | ·24 | — | 3·41 | 1·71 | ·20 | 29·32 | |
| | Warmbrunnen | 32·66 | — | — | — | ·31 | — | 3·58 | 3·28 | ·37 | 44·1 | With chloride of potassium. |
| | Wilhelmsbrunnen | 130·1 | — | — | — | 1·22 | — | 10 47 | 1·60 | ·37 | 147·4 | |
| | Soolbrunnen | 143·0 | — | — | — | ,95 | — | 10·78 | ·36 | ·75 | 161·97 | |
| ARNSTADT | - - - - | 32·62 | ·62 | — | 1·90 | 4·05 | ·90 | 1·25 | ·05 | — | 41·42 | |
| BOURBON LANCY (Sanône-et-Loire) | - | 11·37 | 3·5 | ·43 | 2·18 | ·17 | — | ·52 | 1·31 | ·17 | 19·82 | |
| BOURBONNE-LES-BAINS (Haute-Marne) | - | 50·57 | 3·5 | — | — | 7·70 | — | ·87 | — | ·02 | 66·22 | |
| SALINS-MOULIERS (Savoie) | - - - | 99·02 | — | — | 5·6 | 12·18 | 6·58 | 8·79 | — | — | 132·48 | |
| BRIDES-LES-BAINS (Savoie) | - - - | 10·69 | — | — | 9·02 | 20·56 | 6·12 | 2·84 | — | ·14 | 49·73 | |

# ON FOG AND SMOKE.

By Sir Douglas Galton, K.C.B., D.C.L., F.R.S.

*A Lecture delivered at the Parkes Museum of Hygiene on December 1st.*

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I think that it would have been difficult to choose a more appropriate time than the present to address you on the subject of Fog and Smoke; for the dark canopy which we have so ingeniously contrived to suspend over our heads in London has had the effect of depriving us during the past month of at least four-fifths of the daylight which we should have enjoyed if we had been free from this incubus.

It is not by loss of daylight alone that we suffer; we are also injured by the impurities in the air which a London black fog gathers round us.

The evil grows year by year. Just consider the map of the London of to-day with that of the London of forty years ago. Regent's-park at that time abutted on green fields; now houses extend continuously up to Highgate; Hampstead, Hackney, Homerton, Chelsea, were then detached suburbs; Peckham, Brixton, Clapham, and Kensington were country villages. Now the buildings extend continuously from Hammersmith to beyond Stratford, and from Highgate to Sydenham. The whole district is now covered with houses, each of which sends up into the atmosphere its quota of black smoke. If you get up at half-past six or seven o'clock in the morning, you will often see a clear beautiful sky, but as soon as the fires are lighted in the houses all is changed; the sky is overcast with a dense canopy of smoke, and daylight is obscured.

I propose to explain to you in this lecture, in the first place, the injurious nature of these black fogs; and in the next place to show you that the only remedy lies in the determination of the occupants of towns to submit to some restriction in the methods of warming their houses if the fogs are to be got rid of; and thus I hope to convince you that it is the duty of every inhabitant of London and other large towns to make some exertion to mitigate these evils, which may be summed up in loss of daylight and deterioration of air.

*Loss of Daylight.*—It has been truly said that cleanliness is the beginning and the end of sanitary labour. But cleanliness is impossible without light ; for dirt must be seen to be removed. The dense fog not only shuts out the light, but itself coats with dirt everything it touches. Moreover, absence of light not only encourages dirt, but it lowers vitality and encourages disease. In illustration, let me quote some words from one of Dr. Richardson's addresses:—

"'Let there be light,' is said to have been the first command, and truly no command should ever stand before it or bar its way. Pure light purifies ; destroys the organic poisons of spreading diseases ; makes a cheerful countenance ; gladdens the heart ; causes the blood to flow quickly, brightly, and of natural hue. Plants, the universal purifiers for man, which take up his breath, which live on his breath, and which give it him back again in food produce, sicken and die if they have no light, but live and grow, and grow rich in the waves of this, their natural inheritance. 'More light ! more light !' exclaimed the dying German poet Goethe. 'More light ! more light ;' exclaims the sanitarian, as he looks on the masses that are dying prematurely in large dense populations, and, touched by Him 'who is clothed with light as a garment,' sighs with them over their sorrows, sufferings, and oppressions."

*Deterioration of Air.*—The smoke loads the air of London at all times with particles of soot. The air-passages of persons who have died in London have been sometimes found to be blackened with soot, and thus the mechanical difficulty of breathing must have been increased ; but, independently of that, the analysis of London air in fogs shows distinctly that it is less healthy than country air or, indeed, than ordinary London air.

I should imagine that all persons who inhabit London will concur in the view that the breathing of a London fog is accompanied by unpleasant symptoms. The atmosphere is often acrid ; it is almost always oppressive to the strong and healthy ; and delicate persons often feel its unpleasant effects seriously. Dr. Russell has made several experiments. His results explain these unpleasant effects. They show clearly that the ammonia and organic matter, as well as the sulphates and chlorides, increase in amount very appreciably in the town air as compared with the country air.

Dr. Russell's experiments were made at St. Bartholomew's Hospital, and at various places in the suburbs of London. He found the City rain to contain twice as much impurity as that collected in the suburbs, but the impurities at each place were in the same proportion. That is to say, if you dilute the City rain with very nearly an equal bulk of water, you have the rain of the suburbs. He found that the carbonic acid ($CO_2$) in the City air on a fine day amounted to 3·96 vols to 10,000 vols. of air. In the air in London parks, Dr. Angus Smith found 3·01 vols. of $CO_2$ in 16,000 vols. of air. In a dense fog, which began on the 10th December, 1884, Dr. Russell found that there were 9·4 vols. of $CO_2$ in 10,000 vols. of air; the fog lasted over the whole of the next day. At noon of the second day, there were 11 vols. of $CO_2$ and at 5 p.m. there were 14·1 vols. of $CO_2$ in 10,000 vols. of air, or nearly four times as much as in ordinary London air; and, you will observe, that the duration of the fog accumulated the evil. Carbon present in the air was ascertained to be seven times as much, and the nitrogen to be two and a half times as much in ordinary foggy weather as it was in fine weather. The quantity of sulphuric and hydrochloric acid was nearly four times as much in ordinary foggy weather as in fine weather. These were the results in ordinary foggy weather.

The opportunity for examining the air in a dense fog did not occur during these experiments; but Dr. Russell observes that a dense fog would no doubt give far more marked results than any of the foregoing experiments.

*Cause of Fog.*—The conditions necessary for the formation of fog or haze are now well known. When vapour of water is present in the air it will be deposited on any particles which are floating in the air, and thus form a visible fog. It will deposit on the pollen of plants in the open country, and the haze on a summer's day is frequently due to this. It will deposit on particles of salt in the air near the sea, on the dust in our towns. It seems that the aqueous vapour has a greater affinity for some particles of matter than for others. For instance, it deposits readily on sulphur fumes and on ammonia. Now, these impurities exist largely in London air. The sulphur comes from the combustion of our coal. The ammonia comes from the decomposition of organic matter, which we retain in

far too large quantities around us. The streets are covered with horse manure, which a dry, windy day blows into our faces.

In London there is no arrangement for the rapid removal of stable manure ; and persons who keep horses are permitted to accumulate and retain the manure for far too long a period. Our dustbins are not emptied often enough. From these and other causes our town air is filled with ammonia, which is especially favourable to the formation of fog. It is further alleged that the imperfect combustion of bituminous coal sends up tarry particles into the atmosphere of our towns, and that the tarry matter coats over the particles of vapour of water deposited on the dust, and thus prevents its evaporating so rapidly as it would otherwise do, and that this gives a persistency to a London fog which it would not otherwise have.

*Are Fogs Removable or Preventible* ?—I have told you that fog or haze arises from the aqueous vapour present in the air being deposited on particles of floating matter. When these particles are loaded with a large quantity of this vapour, or when, by mutual attraction, these loaded particles cohere, their weight may become too great to permit them to continue to float in the air ; they then fall in the form of rain. The rain falling removes the dust, and consequently the fog, from the air. In fact, it washes the air free from dust and fog. A similar result is obtained by the deposit of dew. In the early morning you will often find the atmosphere of London beautifully clear, and you will similarly see the same effect after a shower of rain. This effect is especially visible after a thunderstorm. Professor Lodge has given a theory to explain the reasons why a thunderstorm should have this purifying effect : of this theory I will endeavour to give a general idea.

According to the kinetic theory of gases, there is a perpetual movement going on amongst the molecules of matter. In this movement it would seem that the molecules are repelled by any warm body, but they are driven towards, instead of away from, a cold body. It is an evidence of this fact that a cold body becomes quickly covered with soot in an atmosphere of smoke, while a warm body remains clear. It is easy to illustrate this by taking two black conical flasks, one full of hot water, the other of cold, both put under a bell-ajr containing thick smoke. In about five minutes, if they be taken

out, it will be found that the hot one is nearly free from soot, the cold one covered with soot as with hoar frost.

Thus, bodies colder than the air in contact with them have the dust present in the air driven on to them from any adjacent warmer surfaces: you will see this effect on a wall above hot water pipes or on a ceiling above a gas-jet. A gas-jet, which throws off a certain amount of smoke will, of course, provide more material to be deposited, but the dust and smoke naturally in the air are usually ample to effect a sufficient blackening over a perfectly clear flame; and even an incandescent electric lamp hung a foot or so under a white ceiling will similarly cause a small black patch. In rooms warmed by radiation (*i.e.*, by open fire or sunlight) objects are warmer than the air, and keep much dust off themselves. In stove-heated rooms things are liable to be colder than the air, and thus get exceedingly dusty. Just as a warm surface repels the dust particles, so Professor Lodge has shown that if a surface be charged with electricity in sufficient quantity to produce a discharge, a very rapid repulsion of the adjacent particles takes place, and that in a box filled with smoke, into which electricity is discharged, the whole box will be rapidly cleared of the smoke, the particles of which become attached to the sides, top, and bottom of the box. To specially observe this phenomenon is very easy. Fill a bell-jar with any kind of smoke, and then discharge electricity into it from a point connected with a Voss or Wimshurst machine, or even with a common frictional machine, the other pole of which is connected with the ground or with the base of the bell-jar. To make a thick mist or fog, it is sufficient to introduce a scrap of burning sulphur under the bell-jar filled with steam, instantly the light-coloured country mist becomes more like a town fog; but this also is rapidly dispersed by electricty. In a second or two, aggregation of the smoke particles sets in; they form in masses or flakes along the lines of force, and in another instant the jar is clear of smoke; it has all been condensed on the sides and floor of the vessel. Professor Lodge remarks that whether positive or negative electricity be used seems to make no difference.

The cause of the phenomenon is manifest enough. The electrified or polarised particles attract each other, and are attracted by the opposite poles, just as iron filings are influenced near a magnet.

Professor Lodge further remarks that "Clouds can probably be caused to rain by discharging electricity into them; at any rate, if electricity be discharged into a cloud of steam in a bell-jar, the steam rapidly turns into Scotch mist or fine rain, and so disappears," and he remarks that "These facts lead us to ask finally if there may not perhaps be some possible mode of artificially affecting atmospheric conditions by means of electricity. It certainly seems to me rather probable: and I should much like to have the means of discharging a large quantity of high-pressure electricity into the air, either for the purpose of acting on a fog, or in the hope of perhaps affecting the weather. This much I regard as certain, that if a kite or a captive balloon (a kite for windy days, a balloon for calm ones) be flown into a cloud and made to give off electricity for some time, that cloud will begin to rain. It is just possible, though hardly probable, that by the automatic coalescence of drops into larger ones the potential of the charge so given could become high enough to cause an artificial thunderstorm. The amount of electricity in a thunderstorm is not very great, (Faraday reckoned it as less than the amount in a thimble-full of water, and he was quite right); but its potential is enormous, for there is certainly some automatic regenerative action going on in the atmosphere, which is able to raise the potential of a given charge higher and higher until a flash occurs. With a very large voltaic battery, such as that constructed by Dr. De la Rue for the Royal Institution, or perhaps even a bigger one, of sufficient E.M.F. to give a constant brush discharge from points, a tremendous quantity of electricity could be poured into the atmosphere, and its electrical condition could be certainly disturbed."

I quote these suggestive remarks so that you may be in possession of the later scientific lucubrations on this subject.

*To be continued.*

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*Parmentier and the Potato.*—A monument is about to be erected at Neuilly, near Paris, to Parmentier; to whom is due the credit of being the first man in France to raise the potato from the position of a despised plant to that which it now occupies in French cookery. It is not long since the good people of Montdidier, Parmentier's native town, inaugurated a public statue to his memory.

# BARON LIEBIG.

It would be difficult to suggest any more fitting portrait as the frontispiece to the first number of Diet and Hygiene than that of this eminent chemist, whose scientific abilities were equalled only by the vast utility of his researches and discoveries.

Born at Darmstadt on May 13th, 1803, Justus Liebig soon began to display talent, and in 1819, he entered the University of Bonn, where, as subsequently at Erlangen, he distinguished himself in chemical and physical studies. After he had graduated in 1822, as Doctor of Philosophy, he proceeded to Paris, where he prosecuted his studies under great advantages, having the benefit of the advice and assistance of Guy Lussac, and other leading French chemists. In 1824, at the age of twenty-one only, through the interest of Humboldt, he was appointed to the chair of Professor of Chemistry in the University of Giessen, where, for upwards of a quarter of a century, his lecture-rooms were thronged by students from all parts of the world, anxious to avail themselves of his teaching. In 1837 he took the degree of Doctor of Medicine at Gottingen University. Eight years afterwards (1845) the Grand Duke of Hesse, always one of his warmest friends, raised him to the rank of Baron; and, in 1851, he was nominated to the Professorship of Chemistry at Munich. Many honours were conferred upon him in other countries, amongst them being the Fellowship of the Royal Society of London. The bare titles of Liebig's numerous contributions to the literature of those branches of science in which he excelled, would occupy many pages. We may, however, specially refer to the report on the state of organic chemistry, which he drew up at the request of the British Association for the Advancement of Science in 1837. The results of his laborious investigations were subsequently given to the world in his book, *Die Organische Chemie in ihrer Anwendung auf Agricultur und Physiologie*, a work which produced a great effect, not only on scientific men, but on agriculturists, and gave a mighty impulse to the study of agricultural chemistry. In everything that Liebig wrote, in everything that he did, he constantly kept in view the "practical" and the "useful;" and it was thus that he became world-famous as a chemist and a sanitarian. The closing scene of his life came on the 18th of April, 1873, when he died at Munich, in the seventieth year of his age.

# REVIEWS AND NOTICES OF BOOKS.

## CLIMATOLOGY.

South Africa as a Health-Resort. By Arthur Fuller, M.B. (London: W. B. Whittingham & Co.)

The Climate of the Swiss Alps. By A. T. Wise, M.D. (London: Danks & Co., Dean & Co.)

The subject of suitable health resorts for patients suffering from consumption and other chest affections, (as summed-up by French writers in the single words *Poitrinaires*,) is always one of considerable interest, but more especially so at this dangerously treacherous season of the year when every day brings with it some abrupt modification of climatic conditions, trying enough to the healthy, but almost fatal to the unfortunate sufferers from lung disorders,—such weather as the American humorist graphically described in the following doggrel verse:—

"First it rained, and then it blew,
"Then it froze, and then it snew,
"Next it milder got, and thew,
"And then the rain came down anew."

Formerly, the only current idea was to send such patients as have been alluded to away to warmer climates, increased temperature being the one consideration, without any regard to numerous other more important qualifying conditions. But, close observation and diligent investigation have conclusively established the fact that, in sending the patient to some other country, simply because that country could boast of a higher maximum temperature than the one which the patient had left, we should ignore various important factors of health.

Dr. Hermann Weber, a great authority on these matters, has clearly stated the principal physical features of value in consumptive cases, in his lecture on the 'Hygienic and Climatic treatment of Phthisis.' They are, according to Dr. Weber,—1. The purity or aseptic nature of the air; 2. Dryness of the air and soil; 3. Coldness or coolness of the air temperature, and great warmth of the sun temperature; 4. Rarification and low pressure of the atmosphere; 5. Intensity of light; 6. Stillness of the air in winter; 7. A large amount of ozone.

Dr. Fuller, a medical man practising at Boshof, in the Orange Free State, has addressed himself to the task of indicating, in a modest

though efficient manner, the extent to which different health-resorts in South Africa meet the conditions laid down by Dr. Weber.

Speaking generally, the climate of South Africa is very much drier than that of Great Britain, or any part of Europe, while, in other respects, the conditions are favourable. The summer months, October to March (the seasons being reversed as compared with the countries situated north of the Equator,) are warmer than in England; but in very few places does the heat become at all oppressive. In the greater part of the Colony the bulk of the rainfall is during the summer months; a circumstance of no small importance, as it eliminates the objectionable element of damp cold and fogs, at the same time clearing the atmosphere by making it cool, and generating oxygen. Further, South Africa is a country of high table-lands and mountains.

We must refer our readers to Dr. Fuller's book for a detailed account of the districts to be specially recommended, or in general repute as health-resorts; contenting ourselves with briefly touching upon them. Cape Town is the first port by which the visitor reaches the colony, and the best for health-seekers to book to; the suburbs, preferably Kelk Bay and Wynberg, are better to reside in than Cape Town itself. The air is dry and pure; the heat is moderate, the average maximum of Wynberg for the two hottest months in the year being 80° and 75° respectively. In winter, the thermometer seldom registers below freezing point, but owing to the winter rains being heavier here than in most other parts of the colony, causing the air to be more laden with moisture, it is desirable for persons who are bent on seeking health to remove into the up-country districts. The other coast towns are Mossel Bay, Port Elizabeth, Port Alfred, and East London, the two last-named agreeable to the moderately robust, but having no very special recommendations as permanent residences for consumptive invalids.

In the Western Province the principal places suitable for phthisical patients are Ceres, Caledon, Tulbagh, and Worcester. Of these, the one which has been most extolled as a health-resort is Ceres, a small town easily accessible by rail (84 miles) from Cape Town. It is situated about 1,700 feet above sea level, amidst very beautiful mountain scenery. The general sanitary conditions are satisfactory, and invalids will find good accommodation which is rather deficient

at some of the other South African health resorts. Various medical men, amongst them the late Dr. W. Leach and Dr. Hertz, have written in high praise of this locality. The average maximum temperature for the hottest six mouths in the year was 75°. The average minimum night temperature for the same six months was 50°. The mean humidity at 9 a.m. during the same period was very low, namely, 61 per cent.

The Eastern Province includes within its limits the following places suitable for invalids :—Graham's Town, Graaf Reinet, Colesburg, Aliwal, Queenstown, and Cradock. Their average summer humidity is 12 per cent. less than that of an English summer, while the proportion of moisture in the winter months is 25 per cent. less than in England during the corresponding period. The best of these health resorts is Cradock, a town with some 2,000 inhabitants, (many of them English,) situated on the Great Fish River, about 180 miles from Port Elizabeth, on the line from that place to Kimberley. An old resident practitioner at Cradock giving the results of his experience, says :—"Asthma is unknown here, and so is phthisis, except what is imported."

Dr. Fuller next describes the Orange Free State, whose chief health resorts, both highly praised are Bloemfontein and Boshof; each possessing climatic and other advantages rendering them specially eligible for consumptives and persons suffering from other chest affections. These localities are fairly accessible from the coast, as, indeed, are all of the others which have been referred to. Dr. Fuller lays very proper stress upon this fact, which is opposite to the notion, common in England, that the journey to them from the sea-ports involves much labour and trouble. Lines of railway run to most of them, and, as regards the rest, greater part of the journey can be effected by rail. When we further consider that the voyage to South Africa is a fine one, occupying barely three weeks, by two of the best-appointed steam-packet lines,—the Union Company, and the Castle Company,—it becomes a matter for regret that sufficient attention has not been directed to the South African health-resorts by the medical profession and consumptive invalids. To all who desire concise information concerning them, we strongly advise a perusal of Dr. Fuller's handy treatise; which, we should mention, gives an excellent map of Cape Colony and the adjacent territories.

Dr. Wise's pamphlet contains a paper read before the International Medical Congress, held at Washington, U.S.A., in September last. It confirms all that Dr. Fuller says on the value of elevated positions, in the treatment of pulmonary diseases. The high-level health resorts are greatly appreciated by a section of the public, increasing in numbers every year, and the old notions on the subject of merely sheltered localities, at the expense of other hygienic conditions, are fast dying out.

Dr. Wise speaks of the importance of observations upon atmospheric electricity, a most important curative factor in the study of climate. Writing of Colarado, Dr. Denison, of Denver, makes some extraordinary remarks on this matter, quoted by Dr. Wise :— "You lie down to sleep on the ground, as only a tired camper can, and rise in the morning from your *negative electric* bed to stretch yourself in the *positive electric* air. I have yet to meet with an experience which will dissuade me from advising a consumptive to live in the open air, and sleep on the ground, *whenever conditions are favourable for so doing*."

Dr. Wise's personal observations on atmospheric electricity have not yet been sufficiently complete to justify anything beyond the statement that the dryness of the air in the Swiss Alps favours electrical commotions, principally affecting the cutaneous circulation, as can be clearly shown with the aid of a condensing electroscope. Electric tension, too, is more apparent in dry, mountainous regions, leading to the formation of large quantities of ozone, which plays a most important part as regards climate.

There is one unique feature of Swiss (and, it might be added, other) mountain climates, namely, the possibility of respiring cold, dry air, without experiencing any sensation of chilliness or pinching by the low temperature. Although several reasons have been suggested for this peculiarity, the main reason for the immunity from the sensation of cold is the small relative amount of aqueous vapour suspended in the air.

Dr. Wise gives reports of upwards of twenty cases of pulmonary complaints treated by him at Maloja, during winter residence. In the majority of these cases marked improvement resulted, particularly as regards increase of weight, and general amelioration. The patients

ranged in age from fifteen to fifty-nine years, and the duration of their residence from one to sixteen months, most of them remaining at Maloja from three to five months. One patient gained as much as 22 lbs. in weight, and three others 13, 14, and 15 lbs. respectively.

This pamphlet forms an interesting appendix to the same author's able treatise on "Alpine Winter in its Medical Aspects."

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## AIR AND LIGHT.—A DOCTOR'S STORY.

By W. M. Carleton.

[The following humorous verses appeared in the *Sanitarian*, of New York, edited by our old friend and coadjutor, Dr. A. N. Bell. They express in a clear and racy manner one of the greatest difficulties with which medical practitioners have to contend,—namely, the fondness of their patients for swallowing physic, while ignorantly or carelessly neglecting the simplest rules of Health.]

I.

Good folks ever will have their way,
Good folks ever for it must pay.

But we, who are here and everywhere,
The burden of their faults must bear.

We must shoulder others' shame,
Fight their follies, and take their blame;

Purge the body, and humour the mind,
Doctor the eyes when the soul is blind;

Build the column of health erect;
On the quicksands of neglect;

Always shouldering others' shame.
Bearing their faults, and taking the blame.

II.

Deacon Rogers, he came to me;
"Wife is a-goin to die," said he;

"Doctors great and doctors small,
"Haven't improved her any at all.

"Physic and blister, powders and pills,
"And nothing sure but the doctors' bills!

"Twenty old women, with remedies new,
"Bother my wife the whole day through;

"Sweet as honey, or bitter as gall,—
"Poor old woman, she takes 'em all;

"Sour or sweet, whate'er they choose,
"Poor old woman, she daren't refuse.

"So she pleases whoever may call,
"And death is suited the best of all.

" Physic and blister, powder and pill,
" Bound to conquer, and sure to kill !"

III.

Mrs. Rogers lay in her bed,
Bandaged and blistered from foot to head ;

Bandaged and blistered from head to toe,
Mrs. Rogers was very low.

Bottle and saucer, spoon and cup,
On the table stood bravely up ;

Physic of high and low degree,
Calomel, catnip,* boneset† tea.

Everything a body could bear,
Excepting light and water and air.

IV.

I opened the blinds ; the day was bright,
And God gave Mrs. Rogers some light.

I opened the window ; the day was fair,
And God gave Mrs. Rogers some air.

Bottles and blisters, powders and pills,
Catnip, boneset, syrup and squills ;

Drugs and medicines, high and low,
I threw them as far as I could throw.

" What are you doing ? " my patient cried ;
" Frightening death," I coolly replied.

" You are crazy," a visitor said ;
I flung a bottle at her head.

V.

Deacon Rogers, he came to me,
" Wife is a-comin' around," said he.

" I really think she'll worry through,
" She scolds me just as she used to do.

" All the people have poohed and slurred,
" All the neighbours have had their word ;

" 'Twas better to perish, some of 'em say,
" Than be cured in such an irregular way."

" Your wife," said I, " had God's good care,
" And his remedies,—light and air.

" All of the doctors, beyond a doubt,
" Couldn't have cured Mrs. Rogers without."

VI.

The Deacon smiled, and bowed his head,
" Then your bill is nothing," he said.

" God's be the glory, as you say !
" God bless you, doctor ! good day, good day ! "

VII.

If ever I doctor that woman again,
I'll give her medicines made by men !

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*A species of *Nepeta* much in domestic use in the United States, in the treatment of colds, indigestion, &c

†A plant of the Eupatorium species, supposed to possess tonic and diaphoretic properties.

# PRIVATE FEVER APARTMENTS.

THE list of callings in *The London Directory* furnishes an interesting yearly synopsis of the requirements of advancing civilisation, and is about to receive a novel addition. Messrs. A. & B. Scarlett, of 50, Wilton Road, S.W., "*Hygienists and Agents for Fever Apartments*" invite the leading physicians of London to inspect the extended field of their operations, comprising, according to the quaint little Prospectus with the alarming code address, "*Scarlatina, London*," in red on the outside, the following sections; (1) apartments for all diseases, (2) homes for scarlet fever only, (3) special apartments for measles, (4) isolation for "suspicious cases" awaiting diagnosis, (5) convalescent homes, (6) sanitary disinfection, and (7) conveyance of patients. From the moment, be it observed, that infection is suspected until the patient, recovered from illness, is restored to the family circle, Messrs. A. & B. Scarlett are at hand as confidential agents and hygienic factotums to the household and henchmen-general to the family physician. But, seriously speaking, the scheme is well devised; the agency supplies a great desideratum, and zealous management should maintain for it a very honorable position in relation to the public health. The popularisation of subjects treated of in DIET AND HYGIENE, the diffusion of knowledge bearing upon the promotion of health, create a salutary prudence and wisdom—not fear or temerity—in confronting infectious disorders, and the desire to act wisely prevails more largely every year among the educated classes. Not one in every hundred homes is suitable for infectious cases, and it is kindness to remove the patient to appropriate quarters. This being recognised, the time seems measurably nearer when removal will become the rule. We give Messrs. Scarlett a most cordial welcome, finding that they have successfully grappled with the difficulties of a very delicate task, and that they fully appreciate their responsibilities. We are particularly pleased with our inspection of the accommodation for scarlet fever cases in a charming residence in the direction of South Kensington. Their arrangements for placing children suffering from measles under the immediate supervision of medical men, are also good, and do not involve the sacrifice of the patients' own physician's advice. Other

diseases are provided for in medically certified apartments in various localities. It is our duty to warn Messrs. Scarlett—even though we may regard the caution virtually unnecessary in this instance—that their continued success and public utility depend upon adherence to their present principles ; any deviation from these, any laxity in supervision, any forgetfulness of their duty to the healthy as well as to the sick, must inevitably result in disaster, and in the speedy and serious animadversion of the watchful Local Sanitary Authorities.

Our readers, especially principals of schools, and heads of large households, should remember that if ever misfortune necessitates recourse to this agency, it will do so with an urgency brooking of little enquiry and reflection : to peruse Messrs. A. & B. Scarlett's prospectus, and mature one's plans for an emergency, while the evil day is afar off, is a wise precaution.

## NOTES AND NEWS.

*Latin for Prescriptions.*—A vigorous attack has been made by Esmarch, the eminent Berlin surgeon, and other leading medical professors and physicians in Germany, upon the practice of writing prescriptions in Latin. There is much to be said in favour of this movement, both in Germany and elsewhere. It would, perhaps, be as well to retain the employment of Latin phraseology with respect to the ingredients of a prescription, if only out of regard for the too nervous susceptibilities of many patients, who would be rendered almost miserable if they knew, or thought they knew, the exact nature of the remedies prescribed for them ; but, as to the directions which have to be subsequently translated and placed on the label for the information of the patient, there can be no valid reason urged why they should not be written by the medical man in English, if only as a measure of safety. A mistake in turning the directions into English, arising either out of the careless writing of the prescriber, or out of the ignorance of the dispenser, might cause serious injury, or even lead to fatal results. One striking instance of the danger thus sometimes incurred has come to the knowledge of the writer of this paragraph. Mr. Justice Grove, many years ago, had a prescription

given to him by a London physician, with the direction that a dose of the medicine, containing an exceedingly powerful drug, should be taken every fourth hour, *quartâ quaque horâ*. The chemist's assistant, by whom it was made up, translated the instruction wrongly, and labelled the bottle with directions that a dose should be taken every *quarter* of an hour. Furtunately, in this case, the patient had read and understood the prescription, so that he disregarded the modified direction. But for this circumstance science and the bench would have lost a brilliant ornament.

* * *

*Smallpox at Sheffield.*—During the month of November no fewer than 604 cases were reported to the Sanitary Committee of Sheffield. At a recent meeting of the Town Council it was decided to obtain powers for borrowing £12,000 for the erection of an additional smallpox hospital at Redmires. The total number of cases reported in three months, September, October, and November, was 1,377, of which 367 had been admitted to the existing hospital. The November return (604 cases) shows that the epidemic is still gaining ground.

* * *

*Chewing Gum* must be, like many more conspicuous vices, an acquired taste, as evidenced by a recent case tried at the Liverpool City Sessions; when one Brassey was fined for selling as "chewing gum" a mysterious composition, coated with sugar, and containing 11 per cent. of solid paraffin, a substance stated by one of the witnesses to be "as indigestible as a button." No doubt, this sweetmeat would afford ample exercise for the jaws of juvenile Liverpool; although, upon swallowing it, trouble would begin.

* * *

*Cheap Vegetables* for winter use may be expected if the "silo" system should be extended from grass food for cattle to other vegetable food for human consumption. A Berkshire farmer has succeeded in preserving broccoli and cabbages in pits, for three winters past, thus insuring a supply of fresh vegetables at a season when the supply is very limited. It is stated that, after being in the pits for four months, the cabbages come out as crisp and fresh as when put in.

The Bishop of Liverpool, preaching on the occasion of the 78th anniversary of the Derbyshire General Infirmary, made the following very sensible remarks :—"It is the highest wisdom in the Church and the State never to forget the importance of the body. To promote cleanliness and temperance, and social purity, to aim at the highest standard of sanitary arrangements, to encourage every movement which can increase health and longevity of a people ; to provide as far as possible good air, good water, good dwellings, and cheap food, for every man, woman, and child in the land ; these are objects which deserve the best attention, both of the Christian and the man of the world."

* * *

*A Judge on Patent Medicines.*—Mr. Justice Kay had before him lately an application to restrain alleged infringement by the proprietor of one patent healing oil against the proprietors of another. Both medicines claimed the power to "conquer pain." Mr. Justice Kay refused to grant an injunction, and added that if any one cared to publish his decision, he might say that he advised the public not to use either preparation "without medical advice." If his Lordship had omitted the three last words, his advice would have been perfect.

* * *

*The Unemployed Poor.*—At a conference on the condition of the London poor, held at the Memorial Hall on December 19th, Lord Herschell in the chair, resolutions were passed in favour of Government aid in the emigration of unemployed agricultural labourers to our Colonies, and of stopping the immigration of pauper aliens into Great Britain.

* * *

*Radford's Sauce.*—We have carefully examined the specimens submitted to us, and are able to report that this condiment is free from any injurious ingredient, cf excellent flavour, and a good aid to appetite and digestion. Our gastronomic friends across the Channel are in the habit of sneering at English people as "a nation of many dishes, and only one sauce." As regards meat, fish, &c., if that "one sauce" were always Radford's, we could afford to smile at their sarcastic remark.

*The new French President*, M. Carnot, in his recent address to the Chamber of Deputies, specially mentioned Hygiene as one of the chief objects which would receive the careful attention of the Government.

## NOTICES AND ANSWERS TO CORRESPONDENTS.

### Editorial Notices.

Contributions are invited upon the various subjects coming within the scope of Diet and Hygiene. Books, pamphlets, &c., for review should be sent as soon as possible, to insure early notice.

The Editor would esteem it a favour if correspondents forwarding magazines and newspapers containing items of interest would mark any portions to which they specially desire to direct attention.

British Health-Resorts.—Our readers will observe that we purpose to make a special feature of the descriptions of different British Health Resorts and Watering Places, often overlooked and neglected by persons who put themselves to much expense, trouble, and loss of time in visiting Continental spas, instead of availing themselves of the facilities open to them in their own country. No. II. of Diet and Hygiene will contain an account of Droitwich and its famous Brine Baths.

Letters, communications, &c., have been received from :—

The Earl of Meath ; Sir Douglas Galton, K.C.B. ; Dr. B. W. Richardson, F.R.S. ; Dr. Thorne Thorne ; Dr. Clapton ; Mr. Jabez Hogg ; Dr. Davis ; Dr. Thorowgood ; Mr. Critchett ; Dr. Crespi ; Dr. Williams ; Rev. J. Wilson ; Dr. Norman Kerr ; Dr. Wright ; Mr. Pearson ; Mr. Kingzett ; Dr. Francis W. Smith ; Dr. Collins ; Mr. Brain ; Mr. Carter ; Mr. Phillips ; Captain Scott ; Mr. Blake ; Dr. Moore ; Mrs. Stewart ; Mr. Hewitt ; Dr. Douglas ; F. R. C. P. ; Spectator ; B. G. ; A Vegetarian ; M.D. ; etc.

Publishers' Notice.—Diet and Hygiene will be Published on the 1st of each month, and Advertisements should be sent in before the 23rd of the preceding month to insure insertion.


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# Diet and Hygiene:

A MONTHLY MAGAZINE

OF

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## ON FOG AND SMOKE.

By SIR DOUGLAS GALTON, K.C.B., D.C.L., F.R.S.

*(Concluded from page 44.)*

*Alteration in Methods of Combustion.*—It would certainly be an easy solution of the fog question in London if it were possible to dissipate a fog by discharging electricity into the atmosphere at various places; and I confess that I think an experiment might be worth trying in a dense London fog. Any general method of dispersing a fog, if science could devise such (*i.e.*, apparatus designed for preventing the formation of smoke), would be far easier to apply than those methods of attacking the smoke question in detail, which commend themselves to the ordinary mind as those which alone would be effective, that is to say, by preventing smoke. The smoke arises partly from various sorts of factories, and partly from private houses. As regards the question of smoke from furnaces of factories, it is urged by some modern authorities that the combustion of smoke is not economical, because the excess of air which it is necessary to introduce through the fire to effect the combustion of the gases, and thus to prevent the formation of smoke, has to be heated, and the heat so applied more than balances that produced by the combustion of the smoke. As regards actual sooty smoke, the solid carbon probably does not exceed one per cent. of the amount of the fuel burnt, and to this extent the above view may possibly be correct;

but the completion of the combustion of invisible carbon, present in the gaseous products as carbonic oxide or as hydro-carbons, is certainly remunerative ; and increased efficiency, measured by evaporative power of the fuel, is obtained by the use of smoke-preventing appliances. With regard to the smoke of boiler-furnaces, the endeavour to prevent smoke in them is no new thing.

James Watt suggested in 1785 the use of smoke-consuming boiler furnaces, fed with cold air ; and in 1801 Robertson adopted an arrangement devised by Watt, in which cold fuel was fed behind the incandescent mass on to a slightly-inclined grate. Darcet, in France, and Parkes, in England, seem to have been the first to attempt the solution of the problem by an alternative scheme, which involved the admission through the fire-bridge of a stream of heated air, with a view to complete the combustion of the smoke and gaseous products; while a third scheme was patented, in 1837, by Fairbairn, who provided two grates, and so arranged the stoking that when one furnace is in full combustion the gaseous products from the other pass over a mass of incandescent fuel, the direction of the combustible gases and smoke being alternated from time to time.

The first legislation against smoke appears to have been in 1829, when a Select Committee of the House of Commons specially considered the effect of factory furnaces in relation to public health; and in 1843 another Committee inquired into the "means and expediency of preventing the nuisance of smoke." About the same time the railways were assuming importance from their rapid extension, and a clause was introduced into the Railways Regulation Act to compel railway companies to consume the smoke of their locomotive engines. It is remarkable how inoperative this has been; and it is certainly no credit to the locomotive engineers of railway companies that so much smoke is still emitted from railway engines.

The prevention of smoke in furnaces has been successfully effected by mechanical stokers. These are designed to substitute mechanical power for the manual labour of the stoker, by the delivery of a small and continuous supply of fuel to the furnace in the place of the larger quantities cast in by hand from time to time as required. At the same time a constant movement of the fire-bars is effected, by which the adhesion of masses of clinker to the bars is prevented, thus permitting at all times the free access of air beneath the fire to

promote combustion. By the use of mechanical stokers, not only is the saving of labour very considerable, and the saving of fuel most marked, but smoke, during their working, can be either entirely avoided or much reduced in amount.

The steam-engine, however, is a wasteful medium for obtaining work by the development of heat. That is to say, the whole heat developed by the fuel used cannot be utilised. Taking a good condensing engine as an example, we may roughly say that, dividing the whole heat energy into ten parts, two escape by the chimney, one is lost by radiation and friction, six remain unused when the steam is discharged, and one only is realised in useful work. It may be fully admitted that the greater part of the aggregate loss is inevitable, but are we to suppose that the resources of science, ingenuity and skill have been exhausted in the attainment of so miserable a result ?

The way in which this heat is lost is easy to see. First, in order to force a transmission of heat from the fire to the water in the boiler, a certain excess of temperature over that of the water must exist in the furnace and flues, and the whole of the heat below the required excess must pass away unused, except the trifling portion of it which disappears in the production of draught. Further, since we cannot avoid admitting the nitrogen of the air along with the oxygen, we have to heat a large volume of neutral gas, which has no other effect than to rob the fire. Considering what efforts have been made to facilitate the transmission of the heat by augmenting the evaporative surface, and using thin tubes as flues, it is vain to expect any great result from further perseverance in that direction, and unless a method can be devised of burning the fuel inside instead of outside the apparatus, so as to use the heated gases conjointly with the steam as a working medium in the engine, a remedy appears to be hopeless. If we could generate the heat in the cylinder and so utilise all that is generated, we might hope for better results ; and the gas engine is an instance of this mode of the utilisation of heat : but here again you must waste the heat which is developed in order to keep the parts cool.

In steam-engine boilers you may, as a rule, with care avoid smoke, but there are many processes of manufacture where the best method of smoke prevention will be to change the rough-and-ready

process which we now adopt of burning raw coal, into the more scientific method of using gaseous fuel. In such cases you may accept it as an axiom that it is not by methods for improving the consumption of crude coal that we shall arrive at freeing the atmosphere from smoke. To do this effectually we must resort to gas, or possibly to oil. It is nearly thirty years ago that the late Sir William Siemens endeavoured to introduce into Birmingham gas for heating purposes, both for manufactories and for houses. The opposition of the then gas company prevented this grand experiment, and it has been in abeyance ever since.

The Smoke Abatement Society has shown over and over again that smoke from boilers, smoke from bakehouses, smoke from pottery manufactories, in fact, all furnaces used for purposes of manufactures, might be practically smokeless, if only the use of smokeless methods of construction and working were duly enforced; and as a proof that this is a very practical suggestion, it may be mentioned that Messrs. Minton have succeeded in abolishing smoke in their pottery kilns at Stoke by the use of gas, and the use of gas has been extended to baking and other ovens. Thus, as regards factories, although one cannot say that smoke has been abolished, yet it is certain that there are plenty of ways in which it might be entirely prevented, if it were not for the supineness and sometimes interested motives of the authorities.

When, however, we come to the second source of smoke mentioned above, viz., the smoke from domestic fires, the difficulties are much greater. So far as relates to smoke from cooking apparatus, the general results may be summed up in the statement that when the fuel is burnt in a close stove it is possible to obtain comparative absence from smoke ; but if you want roast meat you must either have an open fire, or gas, or oil ; and there is no doubt that if smoke abatement be the object to be attained, so far as present experience shows, it is to gaseous fuel in our kitchens, or else to oil, that we must look for the solution of the question. If gas costs 3s. per 1,000 cubic feet, the apparatus ordinarily made cannot be relied on to produce the same heating power as coal except at about four times the cost ; but this difference would be amply compensated for if, where gas is used, it is only lighted when the cooking operation is to be performed, and extinguished immediately the operation is

concluded. And gas possesses, moreover, the advantage of superior cleanliness, freedom from ashes, etc.

We next come to the question of the open fireplace. A separate fire in each room, each of which produces a notable amount of smoke, is one great cause of the smokiness of our towns in winter. The open fire has, however, great merits. The reason why the open fireplace holds its own so powerfully is because of these merits: in the first place it warms the room chiefly by radiation; it therefore warms the walls, furniture, floor, and ceiling with its rays. The comfort you feel in a room well warmed by an open fire, arises from the fact that since the walls and furniture of the room are warmer than the air of the room, therefore the heat of your bodies is not radiated away so rapidly to the walls and other surrounding objects as would be the case if the walls and furniture remained cold. At the same time that the heat of your bodies is thus retained, the air which you breathe remains cool, because the rays from the fire pass through it without heating it. Now there is undoubtedly greater exhilaration produced by breathing cool air than by breathing warm air. This is readily accounted for, because a cubic foot of dense cold air contains more oxygen than a cubic foot of expanded warmer air. The open fire is, moreover, a powerful engine of ventilation, and furnishes the room with abundance of fresh air. Where you warm a room with hot-air or ordinary hot-water pipes, the walls and furniture remain comparatively cold, and the air of the room is chiefly heated. Thus you breathe warmed air which contains less oxygen, whilst you lose the heat of your body to surrounding cold surfaces by radiation. Moreover, as I told you in a previous part of this lecture, the dust deposits more readily on the colder walls and coldest objects in the rooms.

In the Perkins system of hot-water pipes, that is to say where the water is heated under pressure, or in cases where steam pipes are used, the pipes are much hotter than ordinary hot-water pipes. With these you have the advantage of having the walls and furniture partially warmed, but the air you breathe is also heated. Moreover, when you give up the open fire, you require special ventilating arrangements to insure that you shall obtain a sufficient change of air. I mentioned before, that with steam-engines we burn a vast amount more coal than is required to produce the energy which

the steam-engine develops, and similarly the open fire is most wasteful. One pound of coal is more than sufficient, if all the heat of combustion is utilised, to raise the temperature of a room twenty feet square and twelve feet high to ten degrees above the temperature of the outer air. If the room were not ventilated at all, and the walls were composed of non-conducting materials, the consumption of fuel to maintain this temperature would be very small ; but we must change the air of the room if we are to live in it. If the volume of air contained in the room above-mentioned were changed every hour, one pound of coal additional would be required per hour to heat the in-flowing air, so that to maintain the temperature at ten degrees above that of the outer air during twelve hours would require twelve pounds of coal.

But the ordinary open fire consumes much more than would be necessary to keep up the heat, and it, moreover, removes, as a rule, from living rooms, as ordinarily occupied, a larger quantity of air than is absolutely necessary for ventilation. One pound of coal may be assumed to require for its perfect combustion 160 cubic feet of atmospheric air ; twelve pounds would require 1,920 cubic feet ; from 2,000 to 3,000 cubic feet per occupant would supply, theoretically, sufficient ventilation ; but at a very low computation of the velocity of the gases in an ordinary chimney-flue, the air would pass up the chimney at a rate of from four to six feet per second, or from 14,000 to 20,000 cubic feet per hour ; with the chimneys in ordinary use a velocity of from ten to fifteen feet per second often prevails, giving an outflow of air of from 35,000 to 40,000 cubic feet per hour. Thus, you see what an excess of energy is wasted by an open fire. If you are to abandon the open fire, but retain some portion of the comfort it affords, you must warm the walls and floors, etc., of your rooms. If you can maintain your walls, floors, and ceilings at a temperature of from 55° to 60°, combined with an adequate change of air, you will not experience much inconvenience from the loss of the open fire, however much you may regret its companionship.

There are five ways in which we may effect this. In three of these ways one fire in each house in a central position would be used, that is to say, the heat from the fire in a furnace, which might be arranged to be smoke-preventing, would be conveyed to the various parts of the building by hot air, hot water, or steam.

In the fourth the heat would be applied in the room itself by means of gas. In the fifth oil would be used. Where warm air is used it would be necessary to adapt the house in its original construction to the purpose, because my assumption is that the warmed air should be so applied as to warm the walls. Therefore the air would have to flow up through spaces in the walls from the basement. The warmed air passing up the central walls of the house would part with some of its heat to the walls, and would enter the room at a temperature not higher than that of the walls. In order to draw up the warm air into the rooms it would be necessary to have some means of extracting the air from the room so as to draw in the warmed air. It would not always flow in of itself in this country.

Thus you see that the warming by means of fresh air involves ventilation, and, moreover, requires, if it is to be thoroughly efficient, that your architect should have thought out the whole problem when he first plans the house, and before you build it, otherwise you are met with difficulties at every turn. In the method of heating by hot air alone you have this further consideration. The air of the heating-chamber is necessarily at a given temperature, and your house is thus heated uniformly; but it may happen, in this climate especially, that you may want one room to be warm whilst another is cool. It is generally on this account that other methods of heating have been preferred; such for instance, as hot-water pipes, or steam-pipes, led from the fire (which is placed in some central position), so that the most comfortable method of applying heat from hot-water pipes or steam-pipes would be to do so by means of a moderately-warmed floor and moderately-warmed dados extending round the room to the height of the body.

In all cases of heating by hot water or steam, the arrangements should enable the heat to be cut off from any one room at pleasure. In heating by hot air, hot water, or steam, you obtain economy of fuel by having only one furnace in the house for heating purposes, and this furnace may easily be made smokeless. The heating of each part of the house separately and smokelessly may also be conveniently managed by means of gas or of oil. Heating by these methods may be easily rendered hygienically perfect, provided proper arrangements are made to burn the gas or oil in such a way as to ensure that the fumes shall not come in contact with the air of the room.

With these forms of fuel you can apply your heat at the exact point and time at which you want it; you can so arrange it as to give out a low degree of heat for warming fresh inflowing air, or to give out heat to warm your dados, and thus prevent your own body from losing its natural heat too rapidly by radiation; or in the case of gas you can use it through some medium made incandescent, to give out a high degree of heat, and thus to furnish radiant heat to warm you by direct radiation. All that is required is careful adjustment to produce these advantages. But, as I told you before, gas at the price of three shillings per thousand cubic feet costs, for the same amount of heat-giving power, nearly four times as much as coal. No doubt some economy would result from the use of gas in consequence of the facility of lighting it when wanted and extinguishing it when not wanted; as well as the saving collaterally in consequence of its cleanliness. From these considerations, and if a cheaper gas for heating purposes were furnished by the Corporations in towns, or by Gas Companies, there can be little doubt that the great convenience and cleanliness resulting from its use might lead to the abolition of our smoke-giving fires.

Dr. Carpenter has recently advocated the use of smokeless coal. But an open fire of smokeless coal, although it may have a glow, is not generally such a cheerful fire as a fire of bituminous coal; and without care and a rapid draught, which is rarely attainable in the existing open fireplace, carbonic oxide is liable to be formed and to come into the room. I do not therefore believe in the advantages of the use of smokeless coal in an ordinary open fireplace. If we are to use it in our rooms, we must have some form of a close stove.

You will thus see that I am unable to give you any easy panacea for the removal of smoke. It would be a very interesting thing to find out whether a dense fog could be dissipated by the method suggested by Professor Lodge, of discharging electricity into the air during a fog by means of a balloon or a kite; but this, whilst it might remove a dense fog, would scarcely be applicable to remove the continuous canopy of darkness which hangs over us in winter, and which is so serious a sanitary evil. That canopy seems to be due to the great prevalence of fog-forming matter in our London air, and to the enormous amount of smoke.

Therefore, look at it which way you will, if we are even to obtain

an atmosphere free from smoke over the vast aggregation of buildings of which our towns are now composed, we can only do so by reducing the dust and ammonia and sulphur in our atmosphere, and by preventing the formation of smoke. We must enforce the rapid removal of all refuse, and we must resort to more scientific methods, instead of the crude method of burning coal in open grates. We must either use gaseous fuel, or we may hope in the progress of discovery to utilise electricity for the purpose of warming as well as lighting our rooms. The conclusions, therefore, at which we arrive, are that if we are to diminish the causes of fog in London, we should carefully remove at once all dirt and dust from our midst ; we should not allow our house refuse to remain for days in our dustbins, or our stable manure to accumulate and to throw off ammonia and other matters favourable to the formation of fog. In the next place, we ought to give up burning crude fuel, such as ordinary coal in our fires. We must cook by gas, and we must sacrifice open fireplaces. Probably the only way to effect this would be to levy a tax upon their use.

The evils from which we suffer from the fogs in London are so great that I do not think that any apology is necessary for endeavouring to bring the subject prominently before you. It is only by bringing home to the mind of every inhabitant of London what are the deleterious conditions produced by these fogs, that we can hope to awaken public interest in their suppression ; for until there is a strong public feeling that the authorities ought to make every effort to suppress the evil, I fear that very little will be done.

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The trite proverb "Nothing new under the sun," is verified by the following extract from the poems of Dowland, a writer who flourished in the Elizabethan period ; certainly a forcible description of such weather as was experienced over the greater part of the British Isles last month.—EDITOR.

"Mourn, mourn, day is with darkness fled !
What heaven then governs earth ?
O none ; but hell in heaven's stead
Chokes with his mists our mirth.
Mourn, mourn ! look now for no more day,
Nor night but that from hell ;
Then all must, as they may,
In darkness learn to dwell."

# THE PINE TREATMENT AT HOME.

By W. Abbotts, M.D.

There are thousands of sufferers to whom the Pine treatment, as practised so extensively and successfully on the continent—notably at Hamburg, Reichenhall, Ischl, and Baden-Baden—is an impossible thing, by reason of the time, trouble, and expense of travelling to such a distance; and, however wistfully they might cast their eyes towards Germany and Austria, attracted in that direction by the reports given to them by their physicians, or the practical proofs afforded by the improvement effected in the health of relatives or friends, who have been able to spare the time or to undergo the fatiguing journey, these unfortunately placed invalids could only shake their heads and indulge in vain regrets.

But, "everything comes to him who waits," and their turn has arrived at last. Within easy distance of the metropolis, within a bare hour's journey by railway, the Pine treatment can now be obtained as readily and as advantageously as at the various continental spas to which we have referred. Would our reader like ideally to visit the English Tyrol, to try the far-famed pine-baths and pine-inhalations? Let him, in imagination, jump with us into a cab, drive to Waterloo Station, and book to Farnborough, in Hampshire. Away we speed, quickly leaving behind us murky London, almost constantly enveloped at this season of the year in a pall-like fog, suggestive of scores of colds, coughs, and headaches in every street, and soon emerging into sunshine and fresh air as we glide through smiling rural scenes, past the pleasant fields, and commons, and woods of Surrey and Hants. Close your book, fellow-traveller, throw aside your newspaper, and realise to the full—one can scarcely help doing it in such circumstances—the truthfulness of the poet when he sang, "God made the country, and man made the town." Our reflections must end, however, for at the base of an eminence on which stands that stately memorial of blighted vanity and blasted hopes, the mausoleum recently erected by the Ex-Empress Eugénie, at an outlay of £100,000, for the reception of the remains of Napoleon III. and the Prince Imperial, we emerge from the railway cutting and our train pulls up at Farnborough Station; whence a drive of fifteen minutes suffices to bring us to the place whither we are bound,

named, for want of a more comprehensive title, the Hydro-Therapeutic Establishment. We say, advisedly, for want of a more comprehensive title ; yet, we must confess, that it would be difficult within the necessary limitation of a few words, to convey to a stranger the scope and resources of this establishment,—at one and the same time, a home where any person can feel directly at his ease, and an institution providing, under the same roof, the newest and best forms of all the remedial means that balneological art can devise, under the supervision of a specially skilled resident physician.

The buildings are arranged in the shape of a square, and include the old-established and well-known Queen's Hotel, near to Aldershot Camp, and a new block containing the baths department. The hotel, or residential portion, with ample accommodation for more than a hundred people, is of modern erection, and, being only one storey in height, presents the great advantage of having all the bed rooms on the first floor ; thus affording an agreeable contrast with. the huge, ugly, and uncomfortable houses of four or more storeys in which visitors to continental health-resorts are often located Notwithstanding the facilities with which inmates could consequently escape by the various staircases in the event of a sudden outbreak of fire, patent fire-extinctors are plentifully hung at short distances on the walls of the corridors, and cord ladders for immediate use are placed at the windows.

Before speaking further of the residential part, let us make an inspection of the Baths. First, we visit the Pine Baths, a row of well-lighted rooms, walled with bright, clean, glazed tiles. Each bath is constructed of bricks of similar material, and the patient descends into the water by three steps. As showing the perfectness of the arrangements, it may be mentioned that a bath, duly prepared with the Pine extract, can be got ready at any time of the day in three minutes. Each bath has an electric bell in connection with it, so that, by merely reaching out his hand to touch the knob, the bather can summon the attendant in a second, if required. The temperature of the water is between 95° and 100° Fahr., and the duration of the stay in it is from ten minutes to half-an-hour, according to individual requirements. On leaving the bath, friction with a woollen glove, or a piece of flannel, upon which some Pumilio pine essence has been sprinkled, adds to its efficacy. Afterwards, the

patient is advised to rest quietly for half-an-hour upon a couch, well wrapped in a warm blanket, in order to increase the action of the skin. Such a bath is most refreshing and invigorating, and, indeed, it may be designated as a positive luxury. By persevering in a course of pine baths—say three or four weekly for a month or six weeks—full beneficial results can commonly be obtained. This method of treatment is useful in all cases of debility, lassitude from overwork, and the like, and is especially indicated in rheumatic, gouty, neuralgic, and cutaneous affections. It acts like a charm in the obstinate irritation of chronic eczema. The fact should not be lost sight of, when speaking of Pine baths, that, owing to the volatilisation of the Pine extract used in preparing it, the terebinthinate vapour is inhaled by the patient, thus giving no small relief to persons suffering from bronchial and throat diseases.

From our dwelling at such length upon the subject of Pine baths, we might inadvertently lead our readers to suppose that these were the only kind of bath available at this establishment, unless we made mention of the others. The douche bath is one of the best and most cleverly constructed for the immediate application of hot or cold douches, or spray, to any part of the body needing local treatment. The Turkish Bath is large, and luxuriously fitted ; and the Russian, or hot vapour bath, is, like the Turkish, equal to any in the Kingdom; indeed, either would of itself well repay anyone for the trouble of a visit. For the benefit of the wholly uninitiated, we may state briefly that the essential point of difference between the Turkish and the Russian bath is, that in the former the air is hot and dry, while in the latter it is warm and charged with steam.

What is this which next meets our eye as we pass out from the Russian bath and proceed on our tour of inspection? A sort of ante-room, around which are suspended a number of white, surplice-looking robes, at first sight leading us to fancy that we must accidentally have wandered into the vestry of some church. These, as the resident physician who courteously acts as our guide informs us, are the loose wrappers with which patients envelope themselves before entering the adjacent Pine-inhalation saloon, so as to protect their ordinary clothing from the moist vapour. The inhalation saloon is a long room furnished with seats and tables ; in its centre there is a large, ornamental brazier, covered at the top with

pine cones, upon which pine essence has been copiously sprinkled, to enhance the amount of terebinthinate vapour given off. By the simple touching of a spring, steam is at once forced through from the pipe connected with the brazier, and a very fine, delicate spray gradually, though quickly, fills the room with the delicious pine odour, a soothing effect being produced upon the throat and air passages as one continues to respire this novel atmosphere. We shall not attempt the enumeration of the many affections of the throat and lungs in which this direct medication would be beneficial ; our task will be considerably shortened by the assertion that it would be very difficult to indicate any in which the contrary would be the result. The duration of stay in the inhalation-room is one hour. The perfection of the baths would be a matter for wonder, if we were not told that previous to their erection, the resident physician, the architect, and others concerned, personally investigated and studied the arrangements at the leading German Spas, so as to be enabled to construct the Farnborough institution upon the same principles.

Before returning from the baths to the residential part of the building, there is one point which must not be omitted. We have employed, as a general term, the word "Pine" in describing the Pine treatment ; but we must now remark that the *Pumilio* Pine is meant, in every instance. All trees of the Pine order yield, in varying degree, certain extractive principles, reputed from the earliest records of medicine, for their curative properties. But experience and chemical examination have proved that these principles in larger proportion and in purer form in the *Pinus Pumilio* than in any other species. The Pumilio Pine flourishes in the upper Alpine regions, about 6,000 to 7,000 feet above the sea-level, and close to the line of perpetual snow. It is a noteworthy circumstance that the greater the altitude, the more energetic are the medicinal properties of the Pumilio Pine growing therein ; and having regard to this fact, Messrs. G. & G. Stern, the manufacturers of the Pumilio preparations, (which, alone, are employed at the Farnborough Institution,) have established their factories in the midst of the Pumilio Pine Forests situated high up in the ever-snowclad regions of the Alps above Reichenhall. Their preparations are so absolutely pure and reliable that we learn with regret, from the *Lancet* of

January 21st, that it has become necessary to caution the medical profession against numerous more or less impure substitutes sold as "commercial Pumilio oil." Professor Attfield, F.R.S., has analysed Messrs. Stern's Pumilio Pine Essence, and he says that while various samples of Messrs. Stern's preparation had a uniform boiling point of 167° C., the spurious specimens, procured from other firms, contained a considerable proportion of oils having a much lower boiling point. In addition, the professor informs us that the specific gravities were :—Stern's Pumiline, 0·868 ; commercial Pumilio oil, 0·859 ; oil from trees below the snow line, 0·859.

We cannot conclude this article without doing somewhat more of justice to the Farnborough residential arrangements than was conveyed in our few previous remarks on this subject. There are a spacious public dining hall, an equally ample and most handsomely furnished drawing room, reading, smoking, billiard, and card rooms, with private suites of private rooms. In the winter season the temperature of the corridors and other parts of the building is maintained by means of hot-water pipes at the uniform standard of 55° ts 60° Fahr. In warmer weather the ventilating arrangements would be equally satisfactory ; and the sanitary condition may be fully vouched for by the thorough overhauling it has had at the hands of eminent sanitarians and engineers. The water supply is excellent ; being derived from deep Artesian wells situated in the grounds attached to the establishment, which comprise in all 5½ acres. The gardens, containing three tennis or croquet lawns, are prettily laid out, and, being of the same age as the Queen's Hotel, are adorned with well-grown shrubs ; there is also a covered promenade, about 1,000 feet in length, communicating with the house. The surrounding country is attractive, with plenty of good walks and drives, and the proximity to Aldershot Camp helps to make the place lively and bright.

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How to Breathe Properly.—As curiously bearing upon the subject discussed in an article with this title, published in No. 1 of *Diet and Hygiene*, we may mention a fact stated recently in the *Daily News*, touching the mortality amongst the animals caused by the heavy fogs. It appears that those least affected are the elephants, and the explanation given by one of the keepers is significant :—"But then you see they never breathe as we do, or as these hyenas do, through their mouths, but always through their trunks."

# ANALYTICAL AND FOOD DEPARTMENT.

## MARGARINE, *LATE* BUTTERINE.

By Thomas T. P. Bruce Warren.

Spasmodic legislation, such as the Margarine Act, 1887, is sure to indicate a weakness of merit; either there is a blundering on the side of severity or harshness, or there may be a timid dealing with the subject which betrays vacillation or uncertainty.

Acts of Parliament, as a rule, are so open that it has become proverbial that one may drive a carriage and pair through any of them. In my opinion, it is better that it should be so, than that a honest trader or merchant should be crippled in his business. A man's conscience will dictate how an Act is to be rendered; the only fear likely to arise on this rendering is from the peculiar elasticity of conscience inherent in human nature. A loop-hole is not left in an Act of Parliament for the benefit of an unscrupulous person. It is the intention of an Act, and not its verbiage, which we must look at. Many cases have arisen in which our Judges have been called upon to decide the meaning of an Act; fortunately the legal mind is not likely to have to frame a meaning to the Act we are considering. "He who runs may read," and this Act is so far intelligible that this proverb most aptly applies. But a curious uneasiness has been so manifest in the butter trade, with respect to this Act, that one can hardly refrain from being persuaded that this article in question, although presented as genuine, has been in many cases most fraudulently manipulated.

The unfortunate mistake has been in allowing the word "butterine," which so closely approaches that of "butter," to be used. The consternation in "branding" and "marking" packages containing Margarine is a clear indication of what has been going on. If Margarine on its own merits could have created a *modus vivendi*, its altered name from Butterine would have mattered very little, if anything. The idea is that this alteration of name will create a prejudice against the article. I am quite at a loss to see this, but I am prepared to hear, when there is a falling off in its consumption, that the word has had a nauseating effect.

In 1886 the quantity of this fictitious butter imported into England reached a total of one hundred thousand tons! This figure does not include what was manufactured in this country, which must have been a very little short of the same amount.

A little more than a year ago the Americans passed an Act bearing on this subject, with the result that the number of persons engaged in the trade has been reduced about three-fourths, and the demand for Oleo-Margarine has enormously decreased.

I am unable to join in the lament of one of our leading daily papers over the Margarine Act; still, I cannot help expressing my surprise that we are actually obliged to wait until some foreign power has taken the initiative in suppressing the use of a misleading term, and one so easily calculated to lead to fraud.

No one would wish to create a prejudice against a wholesome article of food, and because Butterine is hence to be known as Margarine, surely it does not detract from its wholesome position. A rose, known by any other name, might smell as sweet, and why Butterine should suffer, because of an alteration in name, I cannot possibly understand, but if the article has been sailing under false colours, I have no word of consolation to offer. I am afraid that our rural industry in butter and dairy farming has received a shock from Butterine which it will not soon recover.

A matter which forces itself upon us is the definition of "Margarine." What is Margarine; and is the definition given in the Margarine Act capable of being stretched so as to include many of the preparations used in the manufacture of Margarine? I say emphatically "No," and here, in my opinion, is an omission which deserves attention. The treatment of animal fats so as to remove stearine can be carried out for no other purpose, as far as I am aware, than for use in the manufacture of Margarine. We may be told that stearine is taken out for candle-making; if we allow this, what use is there for the oleine?

Many manufacturers of oleine are not manufacturers of "Margarine;" still, this oleine is the very foundation of that article, and it is supplied for its manufacture.

Animal fat, or grease, is allowed to stand for some time at or about 80° F., when most of the stearine separates out; pressure removes the adherent oleine, and the stearine is then obtained in a solid,

concrete form. The oleine is next mixed with cotton oil, purified with Fuller's earth, &c., arachis oil, nut oil, cocoa-nut oil, &c., at about 80° F. ; the mixture is then churned with milk for some time, when it is allowed to flow in a gentle stream into ice-cold water, where it permanently solidifies.

It is then milled or ground, and this operation removes excess of milk, and ensures perfect blending ; at the same time, a small quantity of salt is added, when we obtain the finished article. The coloring matter and butter, if required, are blended in during this part of the operation. This is, in principle, the process of Margarine manufacture.

In separating stearine from oleine in animal fats, the soft fats or greases are used in preference to the hard fats or tallow. Beef fat is always used, as being more palatable. The stearine is sometimes employed for candle or soap making ; not unfrequently it is mixed with other fats and passed off as lard, but this mixture would reveal an abnormal proportion of stearine, by being harder and not so easily fusible as lard. To get over this, cotton oil is added to make the mixture more closely approach the nature and properties of lard.

A short time ago when experimenting on Margarine, I found, after removing a large quantity of cotton oil, that a quantity of cocoa nut oil was present ; I was completely surprised at this result, for the smell of cocoa nut oil is so unmistakable. I find that cotton seed oil completely masks the smell and flavour of this oil. Many may ask why, above all others, should this have been selected for Margarine ?

In the first place being a concrete oil or fat, it is well adapted for such a purpose ; provided its smell and flavour could be concealed. In the second place it approaches more closely than any other vegetable or animal fat to the composition of genuine dairy butter. Now in examining samples of butter for the purpose of detecting adulteration, we obtain a very great deal of evidence from the volatile acids which any particular sample yields, as well as the fixed fatty acids ; to this may be added, in the way of general confirmation, the melting and solidifying points, &c.

The examination for adulterations of butter is a tedious and troublesome subject, but experience makes this so reliable and trustworthy that pure butter cannot be declared adulterated, but an error

in the other direction, viz., of reporting an adulterated sample as being genuine, has and may again happen; yet, it is better to feel that a guilty person may perchance escape, than to reflect on a case where an innocent person has been condemned. I am happy to say that our records are free from such a reproach. We have only to imagine what the effect would be on an honest and careful tradesman, to find himself branded as taking advantage of his customers in a surreptitious manner. The pecuniary loss may be left out of the calculation, but the damaging effect on his social position, and as a tradesman in particular, would probably end in his utter ruin.

Another aspect of the question has been forced upon our attention by the action of those dealing in Margarine. Several trade journals have been discussing the means of making one's-self safe from the stringent effects of the Act. To my mind nothing is so confirmatory of negligence and back-sliding as for a man to label all he sells, whether genuine or not, as "Margarine." I can hardly imagine that any respectable tradesman would act in so suicidal a manner, and yet this has been actually recommended and even attempted.

The fault with our Adulteration Acts is mainly that the fines are too slight to produce a deterrent effect. Thus it is that the risk of adulterating is of some worth, as a speculative venture, the fines being nominal, so that a man recoups himself in a short time. The fines for adulterating butter are too high for any one to run the venture a second time; this is exactly as it should be. Acts of Parliament are not the best kinds of sermons to make us moral, and although the eighth commandment will not persuade some to be honest, we are obliged to try more stringent methods.

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## EGGS, THEIR USES AND VALUE.

By P. L. Simmonds.

In a recent lecture, delivered at the Society of Arts' Rooms, Mr. Simmonds gave some interesting information concerning eggs. In speaking of the vast trade carried on in them, he said:—"In 1850 we only imported 105,500,000 foreign eggs; in 1860 this had risen to 167,500,000; in 1870 to 430,750,000; in 1880 to 747,500,000;

and last year to over 1,035,000,000. When to this we add the Irish and British production, the great importance of this industry and of poultry breeding in general becomes apparent. Our consumption of foreign eggs alone is nearly thirty annually for each head of the population. In England fancy poultry are chiefly bred, setting aside turkeys and geese. Excepting in one or two districts, poultry farming receives but little attention ; hence England depends mainly upon Ireland and France for poultry and eggs. In France the order is reversed. That country exports eggs to the value of £1,500,000 sterling. Famous for her poultry, France also sends away fat capons and pullets to a large amount. By the census of 1872 there were in France over 45,000,000 fowls, 3,500,000 ducks, about the same number of geese, and 1,000,000 turkeys. It is to France, then, that we must look for the principles upon which market poultry are produced to suffice for home consumption and leave a large surplus for export at a profit. On the whole, taking into consideration that the foreign breeder reaps a large return by exporting eggs to England, notwithstanding the expenses of freight, profit of exporters, importers, dealers, &c., to which he has to submit, it is evident that the Englishman, who has so many advantages on his side, would find the raising of poultry most advantageous. It is further to be remembered that while French eggs are often sold in London at sixteen a shilling, we seldom get much more than half that number of English eggs for the same money. Like many articles of general consumption, eggs have risen in price. In 1854 they were sold as low as 4s. 6d. per 120. In 1856 they advanced to 5s. 8d. From 1869 to 1871 the price stood at 6s., then sprung up to 10s. in 1873. In 1885 the price was 7s. ; it is now about 8s. wholesale, the selling price ranging from 9s. to 11s. The import of eggs from Ireland, of which I have no recent details, must be considerable, as the number of poultry kept there is 14,000,000, or double what it was forty years ago, and Great Britain has only a couple of million more head of poultry than Ireland. The production and export of eggs furnish an important industry, especially in the northern departments of France. Eggs are sold in the markets of Paris in baskets which ought to contain 1,004 good eggs. These are counted, at the wish of the buyer, by the official agent who checks off the loss, also the size by passing them through a ring. The charges are 25c. per

1,000 for counting, 65c. for examination, and 15c. for passing the ring; besides these charges, there are the octroi duties collected by the Municipality of Paris.

Twenty-five million dozens of eggs are brought into the New York market yearly, and, according to the best estimates, the United States produce 9,000,000,000 of eggs annually. The eggs received yearly in New York, according to one authority, reach over 500,000 barrels, valued at £1,800,000; and this is but one branch of the trade. It is said that Philadelphia consumes 80,000 dozen eggs a day. The receipts annually in Boston are over 6,500,000 dozen. Between four and six million dozens are annually exported from the States. The millions of dozens consumed throughout the States without passing into dealers' hands, it is impossible to estimate. Canada supplies large numbers of eggs to the States. In some years six or seven millions of eggs are exported from Spain. About 6,540 cases are shipped monthly from Italy."

Dealing with the chemistry of the egg, Mr. Simmonds pointed out that shells of eggs afford a very pure form of carbonate of lime. The egg-shell is porous, and evaporation is constantly going on, and when that process is stopped, the egg remains good for a great length of time. The composition of a fresh egg inclusive of the shell, is 74 parts of water, 14 of albumen, 10·5 of oil or fat, 1·5 of mineral salts; and it is strange how little people appreciate the nutritious and medical properties of the egg. Eggs are useful for many purposes besides food and hatching. The white of an egg has proved a most efficacious remedy for burns; seven or eight successive applications of this substance soothe the pain, and effectually exclude the burn from the air. This simple remedy seems preferable to collodion, or even cotton. Extraordinary stories are told of the healing properties of an oil which was easily made of the yolks of hen's eggs. It is in general use among the colonists of Southern Russia as a means of curing cuts, bruises, and scratches. If he gets a fish-bone stuck in his throat he swallows an egg raw, and it is almost sure to carry down the bone easily and certainly. When, as sometimes by accident, sulphate of copper, or any other corrosive poison is swallowed, the white of one or two eggs neutralises the poison and renders it inert. Raw eggs have at all times been

considered an excellent remedy for debility on account of the nutriment contained in them.

Six large eggs weigh a pound, and they equal one pound of beef. At average prices they are amongst the cheapest and most nutritious articles of diet, and the phosphorus of the egg is very useful for those who have brain-work to do.

The whites of eggs are used for many purposes of manufactures. The clarifying of wines in France requires annually, at the rate of four eggs per barrel, more than 80,000,000 of eggs. Bordeaux alone uses 15,000,000 for this purpose, and Paris 5,000,000. To avoid this certain kinds of fining powders are beginning to be employed, by which wines may be clarified with equal facility, and at a smaller expense, and these are sold to the value of about £8,000. In one photographic establishment upwards of two million eggs are used annually, and in calico-printing Alsace uses annually about £330,000 worth, or 37,125,000 eggs. The yolks of eggs are in great demand for dressing skins in glove-making and calf-kid leather.

Eggs to be eaten should be fresh, and the way to test them is to put them in water ; if bad they will stand end up ; if good they will lie flat.

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## REVIEWS AND NOTICES OF BOOKS.

Essays on Health Culture. By Gustav Jaeger, M.D., Stuttgart, Professor of Zoology and Physiology. Translated by Lewis R. S. Tomalin, pp. 309. (London : Waterlow & Sons, 1887.)

Dr. Jaeger's name has become so closely connected with the subject of clothing, merely through his "Sanitary Woollen System," that it seems almost startling to take up this book on Health Culture, including, as it does, a very wide range of topics, which are discussed in a masterly and thoughtful style. One special feature about it is the excellent manner in which it has been translated and edited by Mr. Tomalin, who presents it in such a thoroughly English dress that it is difficult to realise the fact that it is translated from another.

Dr. Jaeger informs us that in his youth he was an active, vigorous, athlete, but before the age of thirty he received an injury to the leg,

rendering strenuous exertion painful, and condemning him to a sedentary life. Then came the almost inevitable consequences, that he grew fat and short-breathed, that his digestion became disordered, and that other inconveniences arose. While his health had fallen into this condition it happened that he was appointed to lecture on anthropology, in addition to his course on zoology, at the Royal Polytechnic School, Stuttgart. Another trouble was now added to the list, for having determined to make his lectures not merely theoretical, but practical, Dr. Jaeger chose for his subject "Health Culture," and, feeling that his lecturing on health would be much the same thing as a bald man descanting upon the virtues of a "hair restorer," he applied himself with energy to the renovation of his own health; arriving, stage by stage, at success, more especially with respect to the reforms embodied in his Sanitary Woollen System.

The contents of the book are arranged under four headings, viz. 1. Physiological; 2. Curative; 3. The Sanitary Woollen System; and 4. Various Hygienic matters.

Part 1 deals with the nature of disease and health, the absorption and exhalation of gases, corporeal exhalations, the vitiation of the atmosphere produced by them, chills and the tendency to them, the effects of excess of fat and water in the tissues, and infection. The Curative section treats of the cure of disease. The third and longest part of the book is specially devoted to a consideration of the advantages of the Dr. Jaeger's woollen clothing system,—*a pede ad capitem*, so to speak,— from the foot-coverings to the head gear.

In part 4, a variety of subjects are discussed. In connection with bathing and the treatment of the skin, the author does not hold with the frequent use of cold bathing for the wearers of woollen clothing, on the ground that the latter constantly attracts the blood to the skin, which is a salutary result, while cold baths produce the same effect for a short time only. Further on, he shows a decided tendency to recommend the occasional inunction of the body with oil, after the manner of the ancients, who, themselves (*i.e.* the Jews, Greeks, and Romans) wool-wearing people, were in the habit of anointing the body with some fragrant oil or salve,—the very name implies a faith in the health-giving properties—after finishing the bath. As regards vegetarianism, acting on the principle, "Examine everything and retain the best," Dr. Jaeger has arrived at the conclusions that

vegetarianism is especially suited to the constitutions of people who lead sedentary, indoor lives, and the lightness of whose occupation creates in the body a relatively small need of nourishment ; while, on the other hand, those who work hard, either physically or mentally, should be dissuaded both from a purely vegetarian mode of living, and from restricting their diet too exclusively to meat food,—in other words, they should adopt a mixed diet.

Dr. Jaeger's book contains many sensible observations upon such matters as eating and drinking, and ventilation. In fact, no one could sit down to a perusal of this work without deriving interesting information. At a first glance it would appear that the author had dwelt too much upon the woollen clothing system associated with his name ; but he good humouredly meets this possible objection :— "My practice as a public teacher is not to recommend that which I, with many others, have recognised as the best, with a demand for unconditional acceptance and submission to my authority. I simply say, 'Here is something which many have approved, and which is therefore worthy of trial by others.' I only ask that the trial shall be correct and thorough."

The arguments in favour of wearing woollen articles of clothing (especially those made with undyed wool) are many, weighty, and practical ; while those urged against it are few, slight, and, for the most part, theoretical.

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The Principles and Practice of School Hygiene. By Alfred Carpenter, M.D., Examiner in the Universities of Cambridge and London : Joseph Hughes. Pp. 368.

Dr. Carpenter is widely and deservedly known as an ardent Sanitary Reformer, and his self-sacrificing labours in that direction have perhaps been less appreciated than they deserved. He has added to his other claims on the community the preparation of a most excellent work on School Hygiene ; the first part of the book treats of the school proper and its surroundings : the second deals with wounds, diseases, and other matters, usually falling more strictly within the province of the surgeon. Perhaps here Dr. Carpenter has made a mistake, and the treatment of abscesses and such like matters is rather beyond the true scope of such an elementary work,

intended for persons with no medical training. It is not at all times easy to convey such difficult information in popular and intelligible language, but Dr. Carpenter has a pleasing style, and is, moreover, so kind, sympathetic, and gentle, that there is a great charm in his manner not altogether lost in his published works. A distinguished Inspector of Schools reports very favourably of the book, and declares that it meets a great want that has long been felt: his opinion—that of a practical man—deserves great and respectful attention.

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THE DISEASES OF THE BIBLE. By Sir Risdon Bennett, M.D., LL.D., F.R.S. Religious Tract Society.

THIS book is well written, thoughtful, and interesting, and the name of a late President of the Royal College of Physicians of London gives it great weight. Unfortunately it is a distinct compromise, and so cannot satisfy either party. The author has attempted to reconcile the brief and imperfect descriptions of disease, which he has found in the Bible, with the severe requirements of modern science: he has also endeavoured not to shock the susceptibilities of those people, who like Dean Burgon, believe that every word, nay, every letter of the Bible, is inspired, and, therefore, literally true. Sir Risdon might have rejected the miracles and thus satisfied the Rationalists, or he might have frankly accepted them as evidence of the nearer approach to and closer relationship with God in ancient times: the latter course would have enabled him to avoid many contradictions and difficulties. Sir Risdon is so rapidly approaching four score years that there is not much likelihood of his re-writing his book: if such a chance did occur he would do better to accept many passages just as he finds them, attempting no explanation. If the events described are miraculous no other explanation is needed, but if they are to be brought within the "domain of reason," that is, of modern scientific scepticism, no explanation will be of the smallest service: the difficulties will still remain. The chapter on Old Age is good, though not particularly brilliant and original.

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THE MEDICAL DIRECTORY FOR 1888. Churchill, 11, New Burlington Street.

THIS invaluable book has just reached us and is the only exhaustive book of its nature published: it is a kind of biography of the members

of the profession, and as such is incalculably important. Three improvements suggest themselves: first, that medical men, in filling up the yearly forms, should enter *all* their degrees, medals, and important appointments; a glance shows us that several friends have omitted an M.A. degree, one or two an Oxford or Cambridge Fellowship, and one an M.D., T.C.D.: second, that young medical men should not insert such matters of course as Member Brit. Med. Association, Member Tolpuddle Medical Society, and trivial letters of ten lines to the Lancet. Lastly, the Editors should be careful of their revisions. In one case the connexion of a medical man of some standing with the University of Oxford, and several important new medical appointments, have been recklessly cut out. Why, we cannot tell.

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## THE UNIVERSAL COOKERY AND FOOD EXHIBITION.

It has now been definitely arranged for this Exhibition to be held in London, at the Knightsbridge Riding School, in the month of April next, extending from the 23rd to the 28th, inclusively. It will be upon a very large scale, and conducted upon similar lines to the Cookery Exhibitions which have been held, at various times, at Paris, Berlin, and Leipzig. It cannot fail to be a great success, and deserves, as it will certainly receive, much support. An influential committee has been formed to further the interests of the undertaking, and a most indefatigable honorary secretary has been secured by the appointment to that office of Mr. C. H. Senn, (a name well-known in connection with high class comestibles,) o 329, Vauxhall Bridge Road. The committee includes many of the principal hotel and restaurant proprietors in the metropolis, as well as numerous *chefs* attached to the leading club-houses. The fund promptly subscribed to defray the preliminary expenses is considerable. We must not conclude this announcement without mention of a most excellent feature of the proposed scheme, viz:— to distribute any profits which may arise from the Exhibition of Cookery and Food, between the French Hospital building fund and certain English charities.

Since writing this notice we have received a communication from Mr. Senn, containing the information that the Right Honourable the Lord Mayor, has consented to become the President of the Exhibition.

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# BRITISH HEALTH RESORTS.

## No. 2.—DROITWICH AND ITS BRINE BATHS.

By Dr. Alfred J. H. Crespi. (Wimborne.)

*Sometime Editor of the "Sanitary Review."*

Medical fashions are always changing. When I was a child there was nothing like Torquay, Ventnor, or Penzance for consumptive invalids who could not go to Nice, Mentone, or, still better, to Madeira. Now we have changed all that. Instead of advising patients to seek a comparatively mild but somewhat humid atmosphere, we send them, or rather the almost incalculably small fraction who can afford such a costly journey, to the sunny uplands of Colorado, the bracing highlands of Minnesota with its intense winter frosts, and the snow-clad heights and valleys of Davos and the Engadine, and in those now favourite Swiss Valleys they seem, from all accounts, to find an earthly Paradise—snow so dry that it does not take the polish off the boots, constant sunshine, and a motionless atmosphere, so that with twenty degrees of frost extra clothing is hardly called for, and exercise is practicable and pleasant five days out of seven. In Colorado and Kansas we hear that, in the dry and motionless air, people sit out wearing no great coat, with the thermometer marking 31 deg. Fah. But extreme cold has disadvantages, and it is not always sunshine anywhere, as the following passage from "Isabella Bird's Life Among the Rocky Mountains" will show :—"One day of snow, mist, and darkness was rather depressing, and yesterday a hurricane began at five in the morning, and the whole park—Estes Park that is—was one swirl of drifting snow like stinging wood smoke ; my bed and room were white, and the frost was so intense

that water brought in a kettle, hot from the fire, froze as I poured it into the basin ; this was on November 30th, 1873, at Estes Park, Colorado." Had we at home lofty table lands or sheltered valleys, 5,000 feet above sea level, no doubt they would soon be frequented by crowds of invalids. Imagination, that potent factor in the cure of disease, has a great deal to do with the result. Who has not smiled at the sufferer for whom his physician prescribed without benefit nitrate of potash, and who, some time later, after he had dismissed his medical adviser, met him, and with smiling countenance announced himself cured. "What cured you?" asked the physician. "Why," rejoined the quandam patient, "I hardly like to tell you, it is so ridiculously simple ; but some saltpetre, to be sure, which a friend, who had tried it and knew its value, and had also rheumatism badly, urged me to take regularly for three months." The same remedy as that prescribed by his physician, but taken with greater faith and under a different name had cured him. Change of air—implying as it does change of food and water and complete rest, fresh faces, and modified habits—is invaluable. Who, in the full glory of vigour and health, has not felt that a fresh church, unfamiliar streets, and unaccustomed voices, even a strange doctor into whose sympathetic ear to pour one's complaints, were powerful factors in making change of air beneficial, and the invalid feels this with double force. Davos, Colorado Springs, Cartago, and Buena Vista, in Costa Rica, and Orotave will have their day, as Florida, Falmouth, Malta, Malaga, and sea voyages have had theirs, and then we shall send patients to find health amid still more unfamiliar surroundings, for example, for a few weeks in Tierra del Fuego, or for a trip to Mount Erebus, or a journey across Siberia in January, or a residence in a tent in the Sahara in July. The fashionable physician will never be at a loss for some place with manifold and untried virtues to which to recommend his opulent clients.

Droitwich is a place that of late has been coming prominently into public notice. It has no extensive forests near, no dazzling Russian or Spanish sky, no mild humidity, no furnace-like heat and dryness to recommend it ; its sole claim rests upon its Brine Baths. and upon their long-tried efficacy, proved by thousands of patients, in gout and chronic rheumatism. For eighteen hundred years brine has been pumped up in enormous quantities and evaporated into salt

of excellent quality. This has led to certain curious sinkings of the land that are most interesting to the visitor, but not cheering to the local householder and landowner. The brine springs of Droitwich are interesting for their purity and extraordinary strength, containing, as they do, nearly, if not quite, 50 per cent. of salt. Fifty years have passed since attention was first drawn to the value of hot brine baths, and the late Mr. William Bainbrigge, an excellent and experienced surgeon, did much to push the place. The first mover in such an undertaking is rarely rewarded, and Mr. Bainbrigge went his way to join the majority, having done less good to himself than to suffering humanity. His son, Dr. W. P. Bainbrigge, is following in his father's steps, and giving particular attention to the properties of the baths and to the complaints in which they are most efficacious. It is his opinion, and it was confirmed by patients whom I carefully examined and questioned, that a course of these baths is invaluable in many of those forms of gout and rheumatism unfortunately so common, and certain always to be common, in England, more particularly among the elderly poor, who have had years of exposure to the weather, and among the rich, who, having inherited a tendency to gout, have long led an indoor and luxurious life. From the great strength of the brine it is necessary to dilute it with an equal amount of boiling water. After a time the swollen and tender joints become less sensitive, and return more or less completely to their natural size, whilst the skin of the whole body gets soft and velvety. Dr. Bainbrigge assured me that the water in which gouty patients had bathed was found to contain a good deal of urate of soda, which he believed was dissolved out of the tissues by the solvent properties of the brine ; perhaps it was only washed off the skin ; the latter seems to me most likely to be the physiological explanation. The fact, however, remains, that the baths get rid of a great deal of gouty matter, though none the less do they need to be taken under competent medical supervision, as they do not suit all cases.

Of late admirable accommodation, on a large and luxurious scale, has been provided for the increasingly large number of sufferers who flock there. There are also several private boarding houses, which provide, at moderate charges, every convenience and attention, and two large hotels. The Raven, kept by Mr. Geo. Buddle, is an extensive and imposing building, with charming grounds exquisitely

nice, comfortable rooms, and cheerful surroundings. I went over the drawing room and ground floor, and was pleased with the beauty of the rooms and the admirable management. The other hotel, the Royal, managed by Miss Coghlan, I have not had an opportunity of going over, though the accounts I have received of its internal arrangements were most satisfactory and left nothing to desire. Mr. John Corbett, M.P., for the division, and a wise and enlightened benefactor of the town, has done much for Droitwich, developing the salt industries and building some extensive baths fitted up with the latest and most luxurious appliances for treatment and comfort. When I was last at Droitwich, at the end of September, I was charmed with Mr. Corbett's arrangements, and the accommodation seemed extensive enough for years, but I have just heard, I must confess with surprise, though on what is good authority, that the new baths are no longer large enough to accommodate the visitors whom the growing fame of Droitwich is attracting, and that before long considerable additions to them will be made. To prevent disappointment I must add that Mr. Corbett's Brine Baths are not a hotel, so that patients must stay elsewhere, going to the baths once or twice a day. Droitwich is, however, so small that there is no difficulty in doing that.

As for the composition of the water, as it is not, I believe, ever taken internally, it would hardly interest readers to say more than that it is similar to sea water ; though probably far purer than any sea water : it makes table salt with little trouble, and the refuse is small. It differs from the purest sea water in being many times as strong. The beds from which the brine is pumped up are only 200 feet from the surface, so that the water is distinctly cold, with a temperature, I fancy, if 52° Fah., which would be the temperature at that depth in the latitude of mid Worcestershire, its specific gravity is so great that, like the Dead Sea water, it supports a human body on the surface, and some little effort is needed to sink in it, indeed elaborate contrivances would be needed.

In all probability to get the full benefit of the treatment patients should stay some time. It is getting much the fashion for invalids to rush from place to place, stopping here for a week and somewhere else for three days. This certainly is not advisable in chronic gout, and in those cases of thickening of the joints, which perplex the

doctor and annoy the sufferer more than he likes to confess. I am accustomed to the caprice of patients, though my experience of the fabulous fees some physicians are popularly supposed to get is derived wholly from novels ; my patients I find seldom rate my services more highly than I should those of a skilled mechanic, still let that pass : I was rather startled, however, in talking with a civil engineer whose fingers shewed that he was not cured, though he admitted that his brief stay had done him great good, to find that he proposed on the following day going to St. Leonard's, and a few days later setting off for Vienna, returning in a few weeks by the Rhine. Trifling neither does the patient good nor his physician credit.

Many persons who have tried Driotwich once have found so much good, that they have returned again and again, and though it can rarely happen that these baths, or indeed any others, can eradicate the tendency to the disease, and while curing the patient, make him proof in future against a relapse, there is a general agreement that with some exceptions distinct benefit is derived. Probably great attention to Diet, and leaving off spices, alcoholic stimulants and meat, would keep at bay the old enemy. But people seldom care to keep themselves well, though anxious enough to be cured. Some years ago I cautioned a Lancashire Vicar against his habits, and urged him to take active exercise every day, to discontinue wine and smoking, to leave off late and luxurious dinners, and, in short, to live naturally and simply, according to the light of reason. Without hesitation he emphatically declared that he would rather have gout every day of his life then carry out my directions. I took my leave wondering how he could have the audacity to preach upon self-sacrifice and to hold up the example of John the Baptist, Elijah, and the Master to his flock when his own life and conduct reflected so little of the spirit of their teaching and practice. This young High Church parson was not the only one I have known whose life was one of self-indulgence and worldliness, while his sermons magnified the importance of self-sacrifice and simplicity. Another friend of mine, also a very self-indulgent clergyman, had tried all the baths he could think of and had suffered many things at the hands of physicians, and hotel proprietors, and was none the better but rather the worse: at last, at 55, he completely changed his mode of life keeping to very small quantities of plain food and simple fruits, and giving up at the

same time stimulants, wine and tobacco, in all of which he had freely indulged, and also eschewing medicines. The result was marvellous, he became young again, found himself able to walk and run as well as the most active young man, and without visiting any more baths at home or abroad, lived for years a healthy and painless existence. As is not unusual in such cases, he became a bitter, indeed a vindictive foe of doctors, crediting them, though on insufficient evidence, with causing and encouraging illness for selfish ends; it is very likely though, that, up to the time of his conversion to simpler habits he had treated with undisguised contempt the advice given him by his more far seeing physicians. "Let us lead vicious and unnatural lives, and please be good enough to make us well," is the demand of too many people of their doctor. Brine baths and change of air are admirable in their way, so is good medical supervision, but to get the full benefit which they are capable of affording, strict attention to Diet is not less important.

A patient of mine, a rather intemperate man, fell from a tree a couple of years ago, and injured his shoulder; he was then 50 or more, and thirty years earlier had had rheumatism badly, going ultimately to the Mineral Hospital at Bath for treatment: at that time he was completely cured and had no return of his enemy till after the fall from the tree, then chronic and severe inflammation of the right shoulder set in, and there was every prospect of his being permanently invalided. At the end of six months I decided to send him to Droitwich, and commenced a correspondence with Dr. Bainbrigge, who was only known to me by rumour. That gentleman most generously and courteously replied to my letters, and he did more, he defrayed the expense of the poor fellow's lengthened residence at Droitwich. The man returned well, his shoulder painless and of normal appearance and size, and since then when the more pressing claims of malt have left him leisure, he has worked like a Trojan; this is my solitary experience of the benefits of the baths to a patient of mine, though a personal friend has found marked good from several visits to Droitwich.

Droitwich is not, in itself, very attractive, nor is the country in the immediate neighbourhood remarkable for grandeur, though pretty and fertile enough. Worcester, with its magestic cathedral, is only six miles off, and the trains cover the distance in a quarter of an hour.

Malvern, with its charming hills and well laid-out and smiling streets, is only 14 miles away, and the luxuriant district of which Ledbury is the centre is just 20 miles off. While no one would choose Droitwich as a permanent residence, it is not worse than many other manufacturing towns, and decidedly superior to some. Its small size, its population locally reputed, I believe, to be 10,000, is however officially given as 4,000, enables the visitor to run off into the open country at once: a quarter of an hour would be enough to get into the fields and lanes, while a few minutes in the train will take him into the loveliest parts of Worcestershire or to Bewdley Forest with all its charms. After all, the first consideration is to get well, and the comfort of feeling that one is getting good, would reconcile one to longer journeys and less attractive places. Near at hand there is some fine timber: the Lickeys can be reached in half an hour, and some of the drives are charming, and leave those, who can afford them, nothing to desire.

Before Droitwich there lies a great future as a health resort, a more brilliant future before its staple industry there could hardly be. It may be a question whether, as far as its baths go, it ranks as high as it might. Hereford and Birmingham both send contingents of patients, who usually return home greatly benefitted, while London is learning that it is not always necessary to wander off to Germany, while Droitwich is so much nearer and so easy of access. I cannot speak as to the expenses of a residence at Droitwich, but should not fancy that they could be heavy, and there is no reason to imagine that those most deeply interested in the prosperity of the ancient town of Wich will follow the evil example of some other health resorts and frighten away visitors by exorbitant charges.

In conclusion, the salt works are well worth visiting, and though the process of evaporation is simple enough, it is interesting. Salt is produced to the extent of 200,000 tons a year, and though the widespread commercial depression of late years has affected Droitwich in common with other manufacturing centres, its salt is of far too remarkable a quality ever to become a drug in the market. Mr. John Corbett has also proved himself a keen and successful salt manufacturer and on this account too, ranks as a great benefactor to Droitwich.

[British Health Resorts, *No. 3 will contain an account of Bournemouth.*]

## *GOURMET* AND *GOURMAND.*

These well-known terms in the French language are often made use of, but not always with sufficient discrimination. It will not be uninteresting, from a dietetic point of view, to enter upon a consideration of these two most distinct characters ; the difference between them being so great that they may be regarded as complete opposites.

The *gourmand* is a mere glutton, who eats as much as he can at a meal, devouring one plate of food after another. In short, he is simply an animal with a huge uncontrolled appetite, feeding much as a dog feeds, with this exception in the dog's favour, that the *gourmand* is more omnivorous than the dog. He is the sort of man who would not omit any one dish at a table d'hôte, and who would in all probability, wind up with the grumbling assertion that he cannot dine properly in that hotel. In fact, whether dining at home or abroad, his animal nature predominates to such an extent that he cannot be fairly ranked as a civilised being.

The *gourmet*, on the other hand, is a product of high civilisation. He enjoys, while he is discriminative in, his food, and he is quite on the side of moderation and temperance ; and he even values the commonest articles of diet, if they are excellent of their kind. A French *gourmet* once remarked, "I am very fond of oysters but I never exceed one dozen, being convinced that after that quantity the palate has become incapable of fully appreciating the flavour." A real *gourmet* preserves his palate in the healthiest and most natural condition. He would not smother an oyster with pepper, nor even squeeze a lemon over it. Plain things are often preferred by a *gourmet* to the richer sorts of food. Persons indifferent to niceties of flavour will drink wine and eat cakes at the same time. Not so the *gourmet*, unless the wine were unworthy of attention ; with a wine of good quality he would rather eat a plain crust of bread. A *gourmet* prefers the simplest meal, such as a beef steak or mutton chop, if really well cooked, to an elaborate banquet badly or unsuitably prepared. Thackeray, in his imitation of Horace's ode, "*Persicos odi*," hits this peculiarity off well in the second stanza, when praising

the virtues of a single, simple dish:—

"But a plain leg of mutton, my Lucy,
I pr'ythee get ready at three;
Have it smoking, and tender, and juicy,
And what better dish can there be!"

To sum up, it may be said that the *gourmand* makes a god of his belly, that he "lives to eat," with no regard for anything but quantity; on the contrary, the *gourmet* "eats to live," with a chief regard for the quality of the viand, and the excellence of its preparation for the table.

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## DIETETIC NOTICES.

### ICHTHYS.

It has been said that the man who makes two blades of corn to flourish where previously only one grew, is a public benefactor; in the same sense, any one who increases the facilities of obtaining good, wholesome food, deserves commendation. Within this category comes Mr. W. P. English, a well-known engineer, of Hull, who has brought out a novelty in fish food, under the title of "Ichthys" (fish). By making up the flesh of fresh fish, entirely freed from bone, into the form of sausage, this very important article of diet can be conveyed to places where, owing to distance from markets, the heavy charges for the carriage of fish in bulk, and local circumstances, fresh fish is practically unattainable. The sausages are manufactured in two varieties, fresh and smoked. They are guaranteed to be composed of the flesh of the finest Dogger Bank Cod, and other white fish, and made into sausages by patent machinery, within a few hours of the fish being landed at Hull. Knowing something personally of the high standing of Mr. English's firm, we feel that their guarantee is trustworthy; and we can vouch strongly for the palatable, nutritious, and wholesome character of this new addition to the table.

### CADBURY'S "COCOA ESSENCE."

Under this distinctive name Messrs. Cadbury, of Bournville, Birmingham, produce a preparation which, while agreeable to all cocoa-drinkers, is especially suited for the large number of persons

who find themselves unable to take the ordinary preparations of cocoa owing to their heavy nature. The Cocoa Essence consists of fine cocoa nibs, from which the excess of fatty matter is carefully extracted, in this manner considerably increasing the relative strength of the preparation, as will be judged by the fact that careful analysis demonstrates that Cadbury's Cocoa Essence contains $34\frac{3}{4}$ parts of flesh-forming iugredients in every 100 parts ; the best French preparations contain only 11 parts. The same firm has also forwarded to us specimens of their Mexican Chocolate, which is composed of the finest cocoa, sugar, and Vanilla to flavour.

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## BENGER'S FOOD

For Infants, Children, and Invalids, manufactured by Messrs. Mottershead & Co., of Manchester, whose preparations of the natural digestive ferments are well known to many of our readers, has been brought under our notice. An important fact which carries it out of the common rank of prepared foods is that it is pancreatised, instead of being merely blended with malt diastase ; consequently, not only is the farinaceous matter rendered soluble, but the albuminoids of the grain, and the casein of the milk, are partially digested, or peptonised. When this Food is mixed with warm milk, the casein is rapidly reduced to a similarly digestible condition to that in which it exists naturally in human milk, so that no hard, indigestible mass of curd is formed in the stomach. The difference between Benger's Food and other foods is evidenced by the circumstance that delicate persons, children, and others retain it in the stomach, even after every other food has been rejected. It is very palatable, and its creamy appearance, when properly prepared, makes it further attractive to invalids. We may add that we have found signal benefit from its use in our own practice.

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## DAHL'S DYSPEPSIA CAKES.

With advancing civilisation, with increased business and social demands upon our physical powers and nervous systems, it would indeed be a more than Herculean task to attempt to wholly banish indigestion and its train of complications, but it is yet in our power to counteract and minimise these evils. To try to effect this

desirable object by frequent medicines is always disagreeable, and, not seldom, impossible. The result is that many persons have recourse to the adoption of certain articles of food, such as whole meal bread, possessing known laxative properties; but these are not always to be had, and, after a time, become distasteful and objectionable. With a view to obviating these difficulties, the manufacturers of Dahl's Dyspepsia Cakes have devised a kind of biscuit which, being made from the cortical layers of different cereals, exactly supply the elements which are lacking in ordinary white bread. The last-named is notoriously deficient in nutritive ingredients, such as the albuminates and salts; and here, again, Dahl's cakes are valuable; particularly in cases where the digestive powers are feeble, where pain is experienced at, or soon after taking, meals, and other gastric disorders.

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## LIEBIG'S EXTRACT OF MEAT AND MALT WINE.

If the historical "old lady of Norwich, who scalded her mouth with eating cold porridge," according to nursery legends, had lived in more modern times, she would have, perhaps, been more sensible, —at any rate, she ought to have been more sensible,—and, instead of partaking so greedily of a dubious and not over-enticing dish, would have hastened her steps to St. George's, Middle Street, to obtain a bottle of the above-named wine from Messrs. Coleman & Company, wherewith to comfort herself and to sustain her flagging powers. Port wine, Liebig's Extract of Meat, and Extract of Malt! Who could name a more palatable, nutritive, and digestible trio of components? At all events, we would not try; we would much rather try Messrs. Coleman's agreeable compound. If we were writing for a medical circle alone, it would seem almost presumptuous to dwell upon the merits of this preparation; but, numbering amongst our readers, as we do, many thousands who have not had the opportunity of ascertaining the opinions of the profession, or of practically testing Messrs. Coleman's wine amongst invalids and others needing special stimulation and support, we feel it a duty to direct general attention to it.

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## MONTSERRAT LIME JUICE.

The healthful, tonic properties of Lime Juice are fully admitted,

but then it must be *pure* Lime Juice, and not the common stuff too often passed off under that appellation. The Lime-Fruit Juice of the Montserrat Company deserves, to the utmost extent, the encomiums passed upon it by the medical press and profession. It is in good condition, sound, and free from adulteration. In the present day, when non-intoxicant drinks are taking the place of others, it is important to know of one on which the most implicit reliance can be placed. The Company's supply is obtained direct from the Island of Montserrat, and the whole of it is consigned to the firm of Evans, Sons & Co., of Liverpool.

## EXHIBITIONS AS MEANS OF HEALTH.

*With especial reference to the Italian and Glasgow Exhibitions of this year.*

WHAT a grand sight it was in September, 1886, to look from one of the staircases over the vast crowds filling the Colonial Exhibition: cheerful, happy faces, and animated voices in all directions caught the eye and fell upon the ear: old and young, simple and gentle, seemed equally happy, and healthy too for that matter. Those South Kensington Exhibitions effectually disproved of the old charge of the famous French Chronicler, that the English enjoy themselves sadly. The varied display of exhibits, the sweet music, the lectures, the cheap food and the exquisitely beautiful electric and fountain lighting were a marvellous success. The last of the four—the Colonial—was decidedly the finest and the greatest favourite, and on each of the nine occasions that I was present the same sight met me, and I was convinced that such exhibitions were valuable aids to health. Much of the money taken at the gates and paid for refreshments came from the doctor's ordinary revenue, it is true, but it could not have been better spent than in keeping off illness.

The Folkestone Exhibition, in a smaller way, did much the same kind of good, though that exhibition compared unfavourably with the far grander and more successful efforts of London and Liverpool. At Manchester and Liverpool during the year just over there was a repetition of the same lesson—that English people appreciate good

out-door fêtes and can on occasions conduct themselves like sober and reasonable mortals. Manchester was peculiarly fortunate and its exhibition was a most brilliant success.

The beautiful grounds of the Royal Botanic Society in the Old Trafford Road were splendidly adapted to their requirements, and for months homely but shrewd Northern folk poured through the gates feasting their eyes upon the splendid paintings that did full justice to English art. Why, it was an education to pass through those twelve galleries and with one eye study the masterpieces of Rossetti, Burne-Jones, David Cox, Leighton, Landseer and Holman Hunt, and with the other watch the quaint and uncultured factory hands of the smoky towns of Lancashire. A school board inspector might at times have been tempted to wonder if universal education was bearing the fruit he could wish, when he saw a dozen eager faces staring at a painting of the Battle of Maiwand, and heard in harsh Lancashire accents "That's Napoleon, and the other one's Wellington." But this was beaten by an incident in the Maltese Court of the Colonial Exhibition. There stood in a case on the right a magnificent figure of Sir Philip de L'Isle Adam, the famous Grand-Master of the Order of St. John of Jerusalem: suddenly a group of people approached—better class mechanics evidently. One of them spied the words *St. John*: with female inaccuracy she jumped to the conclusion that there before her was a representation of the Beloved Disciple: her eyes sparkled, her countenance flushed, and she dashed off to a decent looking old woman, a few yards off, exclaiming "Oh! mother, here's the Apostle St. John," and then followed many ejaculations "Eh, dear; did he look like that. Well to be sure." After all, they were happy, and I was amused.

The first Liverpool Exhibition—that of 1886—was well attended, and was a marvel of energy, and only needed rather more general support to make it worthy of the great sea-port. Last year, in going to it again, I was painfully struck by the small attendance, smaller far than I had seen the preceding year in May and August, although the music, the fountains, and the lighting were far grander the second year than the first; but all eyes were fixed on Manchester, and those who could scrape 3s. 4d. together preferred going to the comparatively remote and unfamiliar cotton capital, than to the beautiful grounds at Edgehill.

Whatever preconceived opinions a person might have formed, he could not fail to admit that these eight or ten great exhibitions were fully appreciated, and that they were invaluable and innocent aids to health. Even in the matter of food much could be learnt; in London the Sixpenny fish dinners, and the Popular shilling ones were marvels of cheapness, and showed what energy could accomplish, while the sixpenny Vegetarian dinners at Liverpool, the year before last, were still more marvellous—a plate of rich soup, an ample allowance of vegetables, or maize cakes, bread and good pudding, all for six pennies; why it was enough to make one remove to Liverpool just to get a cheap and palatable dinner.

Last year there was still another departure, and some energetic Americans gave London an American Exhibition. Perhaps, it is not going too far to say that it was the most stupendous effort of the kind ever made by private persons. When the whole resources of a great nation are directed to such an object, when stars and ribands are plentifully showered upon the chairmen of sections and the members of committees, as was the case at South Kensington, when Royal favour smiled upon the promoters and more distinguished workers, one need not wonder if tremendous efforts are made, and if the results are greatly in excess of anything represented by the mere money cost. But that a few dozen Americans, although backed up by the proverbial energy and inexhaustible wealth of their country, should have got together such an exhibition as that at West Brompton last year, was significant. How it was all managed I cannot conceive. *The Nineteenth Century*, of June, 1887, truly remarked: "When was such an exhibition ever held in a foreign country, without government assistance, by any other nation, in the whole annals of the world?" Let any one organise a tea meeting or a hot supper: let him face the wearing opposition, the dilatoriness, the stupidity, the bad temper of his neighbours: only let him try to stimulate the typical slow moving, sluggish, sleepy Englishman to action; let him have one taste of broken promises, crass stupidity, and bad faith, and he will have had enough to last him for a long time. No one would compare the American Exhibition with the International ones at Manchester or at South Kensington: the grounds, the buildings and the exhibits were necessarily less striking, but when due allowance is made for the difficulties faced, there can be no question that Mr. John

R. Whitley, the organizer and director general, and his able coadjutor Colonel Cody, proved themselves men of iron mould and indomitable energy. That Wild West Show, however, has had no equal for popularity: it was the common talk of millions who never got to town at all, and it will long remain the wonder and delight of hundreds of thousands who did see it. Strange how little harm came to thousands of semi-invalids from sitting out for hours on damp and cold days watching the wonderful feats of the Western men and Indians: that showed that with a good excuse, English people will leave their close, musty rooms and face exposure to the light and air and not always fear a little draught.

The present year will be memorable for two exhibitions, the Glasgow, and the Italian one in London: the former according to the prospectus lying before me, will have features even more attractive than any of its predecessors. In the first place, the site chosen, the Western portion of Kelvingrove Park and the slopes of Gilmorehill, close to the University buildings, is one of exceptional beauty and convenience, and covers 60 acres, or more than double the area available at Manchester. The guarantee fund, still increasing, exceeds £250,000, and the promises of support are worthy of the place and the occasion. Moreover, while English painting in the Victorian era was the chief art feature at Manchester, English sculpture will be the great art attraction of Glasgow. The commercial capital of Scotland is a huge place, with 761,000 people, while a million more live sufficiently near to be able frequently to visit the grounds. Taking it as a whole, one can safely prophesy that Glasgow will have an exhibition that for size, splendour, and completeness, will make the present year famous in exhibition annals. But, after all, it is to the coming Italian Exhibition in London, on the site of the American Exhibition, and under practically the same management, that most attention will be directed. The glorious and touching memories of Italian history fill the heart of the scholar with emotion. The land of Cicero and Horace, the home of the mighty Romans, the seat of the greatest and most wonderful religious organisation of all time, the country that of late has made greater advance than any other, except the United States, merits and claims special attention. How much the world owes to Italy! Roman organisation, and Catholic centralisation, and propagandism, may not have been unmixed

blessings, but they were especially needed in their time and generation. And then when one goes through the long list of famous, sun-lit cities—Rome, Florence, Venice, Genoa, Naples, Ravenna, Milan, Urbino and Turin, when one thinks that at Turin out of 230,000 inhabitants, fully one-fourth are employed in 500 different occupations, and that the great cities of that favoured land are alive with industry and energy, one cannot deny that the land once first in conquest and in law, first too for so long in religious activity, first again in arts, letters, science, and discovery, may yet again be not far from first in manufacturing and commercial enterprise. The difficulty with such a bewildering field of choice is to select from the many subjects deserving almost exclusive attention those most notable, and no one can expect that even the energy of Mr. John R. Whitley, and the cheerful co-operation of many distinguished Italians, and the warm sympathy of countless English supporters, can do more than bring together a small assortment of Italian curiosities. The prospectus shows that not only is the support that has been promised most encouraging and liberal, but that the managers have shown consummate judgment and skill in picking out objects of peculiar interest, and that the millions to whom the cities of Italy will always remain unknown, except in waking dreams, will get some glimpse of that lovely land and interesting and brilliant people.

The Grand Stand of the American Exhibition will be converted into a representation of the Coloseum, and the games of the Roman Arena will be reproduced there on a large scale, and with scrupulous fidelity to ancient details. There will also be models of famous Italian buildings, and there will be a street, lighted at night with Venetian lamps, containing replicas of the façades of houses in which world-renowned Italians were born. Efforts are being made to bring together the most complete and important representative selection of the masterpieces of Italian Art ever seen in England. There will be Panoramas of Venice, of Ancient Rome and of Modern Rome, by day and night, with the church of St. Peter illuminated, nor will the days of Dante, Rienzi, Columbus, and Saronarola be forgotten. So that it will be through no fault of the Director-General and of his English and Italian helpers, if the exhibition is not worthy of London and of the great and glorious people and history, to whom the world owes a debt that can never be repaid.

A few matters remain, which the prospectus does not touch upon —music and representative food. I cannot doubt that arrangements will be made to make music, especially Italian music, a prominent feature, while Italian cookery will probably be worthily represented. Cheap refreshment rooms are one of the best and surest ways of attracting the poorer classes of visitors. Perhaps, both at Manchester and at the American Exhibition, cheap and attractive dinners were not made as much of as they should have been, for a good shilling dinner and a nice sixpenny tea are irresistible attractions to many to whom small sums of money are an object.

S.U.M.

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## COSTA RICA.

The great loveliness of Central America, and more particularly the brilliant and equable climate of the elevated valley of Cartago, where the temperature ranges from 70° to 80° all the year round, night and day, are attracting large numbers of invalids from the United States, and even from Europe. We have been favoured with the perusal of a letter written to a relative in England by a young English lady, who, with her mother, travelled from Richmond, Virginia, to Costa Rica (viâ New Orleans) last October. After a short stay at New Orleans, they went by steamer to Lucien, the principal port of Costa Rica. At this point we will let the fair traveller speak for herself.

"If you do not mind a little *mal de mer*, take passage by the *Foxhall*, and set your face towards the tropics. The steamer was small, but nicely fitted; it is English, owned by Messrs. J. L. Phipps & Co., of London, and used in the banana trade. The captain was a Cape Cod man,—a genial Yankee, if such a thing be possible; the chief engineer was an Englishman, and the waiters all negroes, very attentive and skilful servants. Besides ourselves, there were only about a dozen passengers; we gathered together on the bridge of the steamer, and became very friendly in a little while. I had a horrible dread of being sea-sick, but sitting upon the bridge, with the river as smooth as glass, and the sky clear and beautiful, I

forgot everything but the enjoyment of the moment. At ten o'clock we went down to breakfast, a delicious meal with every imaginable delicacy ; but alas ! and alas ! the waiter offered me one dish after the other with so insinuating a smile that I felt something lay behind. The captain observed that I ate very little, and advised me to make a good meal, as it might very possibly be the first and last on the voyage. You can imagine how appetising I found the remark. After breakfast we returned to our old place on the bridge of the steamer, and began to talk about the land beyond the sea, to which we were bound. The lady who lived at Colon said that in stormy weather she had seen the *Foxhall* come into port at Colon, 'standing on her hind legs and pawing the air with her fore-legs.' Another lady, returning home to Port Lucien, did her share to frighten us, by giving horrible accounts of the yellow fever on the coast ; I could not blame her, poor soul, after learning that she had lost two children within six hours of each other, only four months before. The dinner hour was four o'clock, and we were to pass the jetties at 4.30. At four o'clock we were really enjoying our dinner, when the vessel gave a lurch, nearly everyone turned pale, and several rose precipitately to seek the seclusion of their state rooms. We were out of the river ; our pleasant time was over until we stood once more on dry land. Mamma and I felt perfectly well, so we went up with the captain on the bridge, and talked very cheerfully as though we had nothing to fear in the way of that detestable malady, sea-sickness. At dusk we descended to our state-rooms ; alas, for our pride ! I hung desperately to the captain's arm, and even then only succeeded in staggering down the cabin stairs. I managed to put on a wrapper, and stretch myself at full length on the sofa ; mamma took to her bed with many a groan.

It was Friday night when we turned our faces to the wall, and refused to be comforted ; it was Sunday noon before we again looked upon the light of day. The captain sent to inquire if I did not want to see Cuba—*la joya mas brillante en la corona de Espana.* Of course I said 'Yes,' and greatly to my own astonishment I managed to reach the saloon, and from the doorway looked upon the low grey line which they told me was Cuba. I can assure you that our five days at sea were anything but pleasant. When on the Wednesday morning the captain informed us that the land in front of the ship

was Lucien, I could have shouted for joy. By noon we were in port, where Robert met us.

We had quite a pleasant little stay at Lucien. The Governor of the Port, Don Balverone Vargas, took us over in his steam-launch to La Isla de Uvas, where a sanitary settlement is being made, and gave us glasses of fresh cocoa-nut champagne to drink. It was nice to be seated under a cocoa palm, to have nuts fresh from the trees around us, but I did not like the taste of the juice; it was so intensely sweet. Lucien is the most important port of Costa Rica on the Atlantic, and is not remarkable for architectural beauty, but to me it seemed the loveliest place on earth; at least, after my experience at sea. By the way, the best hotel in the place is kept by two Englishwomen who have been living at Lucien for more than fifteen years.

We left Lucien on Friday morning for San José, and reached that city on Sunday night. From Lucien to Carrillo the journey is made by rail; and I saw enough banana plantations to satisfy me for the rest of my life. We reached Carillo, the present terminus of the road, on the Friday evening in the midst of a typical tropical rain-storm. We spent the night there, leaving on Saturday morning for San José. Robert was on horseback, mamma and I in a coach with two Colombian ladies. Our chariot was drawn by oxen, and for some reason or other they soon became weary, thereby lengthening the journey by twenty-four hours. The scenery is something wonderful; I am engaged upon a series of letters for publication in which I hope to do it justice. When finished, I will send you copies, and in the meantime I will ask you to picture to yourself a landscape made up of lofty mountains clothed with dense tropical verdure to their summits, sparkling cascades, turbulent rivers, a long winding road through narrow mountain gorges, a glorious sky and a sun in keeping with the tropic scene. San José is like all South American towns: the houses are none of them more than two storeys high, and even that is the exception. There is a magnificent cathedral, of which the people may well be proud.

We spent a week in San José, and then came to Cartago; and we are now at Agua Caliente, a surburb of Cartago. We are living in the house of Don Ramon Troyo, a wealthy coffee planter. As I sit writing, on the wide balcony which serves as a room, I can see the

men at work in the 'patio,' drying coffee. There is an orange grove just beyond, and we are kept plentifully supplied with that delicious fruit. The climate appears to be very fine ; we are nearly at the end of the rainy season—the winter of the tropics—and, when the weather permits, we are going to make visits to the volcano of Irazu, the valley of Orosi, and numerous other places of interest in the neighbourhood."

## NOTES AND NEWS.

An American Quack's Case Book.—A pocket diary is said to have been picked up some time back in one of the streets of New York, evidently the property of one of the irregular practitioners with whom that city, even more than London, abounds. The loser seems to have had an eye to business and dollars, judging b the following *verbatim* extracts :—"Kase 230, *Mary An Perkins.* Bisnes, washwoman. Siknes in her hed. Fisik, sum blue pils and a soaperifik ; age 52. Ped me one dollar, one kuarter dollar pece bad. Mind get good kuarter dollar pece, and make her take mo fisik." "Kase 231, *Tummes Krinks.* Bisnes, Irishman, lives with Pady Malonny whot keeps a dray. Siknes, digg in the ribbs and two black eyes. Fisik, to drink my mixter twise a day of sasiperily bere and jellop and fish ile with asifedity to make it taste mo fisiky. Rubed his face with kart greese linnyment, aged 39 years of age. He drinked the mixter and wuddn't pay me bekase it tasted nasty, but the mixter will make him feel sory, I reckon." "Kase 232, *Old Missis Boggs.* Aint got no bisnes, but plenty of money. Sicknes awl a humbug. Guv her sum of my celleberated "Dipseflorikon," wich she said drinked like coled tee, wich it was too. Must put sumthink in it to make her feel real sik and bad. The old wommun has got the fidgitts."

* * *

Cremation is a subject which has lately given rise to warm controversy amongst the Jews, Lord Rothschild and other leading Jews constituting the party in favour of countenancing the practice, while the Chief Rabbi heads the opposition. The Chief Rabbi's principal objection seems to be based upon the first verse of the second chapter of Amos, wherein Moab is denounced "because he burned the bones of the King of Edom into lime," against which Lord Rothschild sets the burning of the bodies of Saul and his sons, in order that they might not be subjected to any indignity. The question has been temporarily shelved, for fear of its giving rise to too much acrimony. There can be little doubt as to the result when it is again brought forward, and sanitary reform has fair play. In connection with the subject of cremation, and the objection which had been raised that the adoption of the practice might sometimes lead to the defeat of justice, in cases of poisoning, &c., it may be mentioned that the Cremation Society are very strict about the conditions which must be complied with before they will grant the use of the Crematorium at Woking.

They will not permit the cremation of the body of any one who has not during his life-time, or by will, expressed a desire to be cremated after death ; and, instead of only the usual certificate of cause of death from one medical man, a second special medical certificate is required from another qualified practitioner. Further, if no doctor has attended the deceased, it is insisted on that a post-mortem examination shall be made by a medical officer appointed by the society, unless a coroner's inquest has been held and has given a satisfactory verdict. The number of cremations at Woking in 1886 were ten, five males and five females (one of them being a Brahmin.) Rather singularly, the number of bodies cremated in 1887 was exactly the same, viz., ten, one only being that of a female.

* * *

SHE KNEW SO MUCH BETTER WHAT WAS THE MATTER WITH HER.—*Dr. Smalldose :* "The appetite a little deranged, that's all. We shall put you right in a day or two."—*Mrs. Flyteighe :* "Oh ! don't say that, doctor !"—*Dr. S.* : "Eh ? What do you wish me to say ?"—*Mrs. F.* : "Please say you don't think I can possibly get through the winter if I don't at once go off to Nice."—*Fun.*

* * *

SMOKE.—A Vienna engineer named Fischer has taken out a patent for a new smoke-abating process. He proposes by means of electricity to condense the solid part of the smoke as it arises from the coal, the carbon thus solidified falling back into the furnace.

* * *

FRUIT.—In connection with Dr. Crespi's interesting article in No. 1 of DIET AND HYGIENE, it will be instructive to point out that the total value of our supplies of fresh fruit from abroad have gone on increasing so steadily that it now amounts to nearly £8,000,000 annually, being ten times as much as it was in 1845. Of apples alone, one hundred and forty million pounds are imported yearly from the United States and Canada ; the value of the United States' supply being £500,000, and of that from Canada £100,000. Even Australia furnishes a considerable amount. Various Continental countries contribute to make up the total ; but it is rather in pears than in apples that they excel. A great quantity of early pears come from the North of France, including the "Duchesse" and other fine varieties.

* * *

THE BREAD AND FOOD REFORM LEAGUE have arranged, with the permission of the Works Committee, of the London School Board, to hold a series of meetings at various Board Schools, with a view to disseminate amongst parents and children correct knowledge in regard to food ; and a meeting has been held at the Parkes Museum of Hygiene, to bring the matter before managers and teachers. An exhibition of different kinds of nutritious food, including a variety of soups, biscuits, cakes, whole-meal bread, &c., was held ; large diagrams being shown, demonstrating the relative proportions of the constituents contained in many common articles of food. The chair was occupied by Dr. Hare, and Dr. Norman Kerr commenced the proceedings by delivering an address on "the inestimable value of good bread" in the course of which he severely commented on the ordinary baker's white bread. This bread was, Dr. Kerr declared, a sham, having

the power to satisfy the hunger without properly contributing to man's sustenance. The flour of which it was composed, indeed, lacked the vital portion of the grain of wheat. White bread was almost without brain-forming power, and if it were not supplemented by other food we should become a comparatively brainless race. Whole-meal, or wheat-meal, bread, on the other hand, was all that could be desired. It contained the necessary material for repairing the brain and warming and building up the body. This being so, its tendency was undoubtedly to increase the health and vigour of the community.—Miss Yates afterwards delivered an address entitled "Wherefore do ye spend your money for that which is not bread?" Miss Yates dwelt upon the importance of the subject of food reform for the poor. The prevalence of rickets, bad teeth, consumption, and other diseases among the children of the working classes, she contended, was mainly attributable to the fact that both mothers and offspring ate white bread and other comparatively useless food. Two dogs had been fed, the one solely on whole-meal and the other solely on white bread. The latter soon died of starvation, while the former lived and flourished. There were objections to the ordinary kinds of bakers' brown bread, but by purchasing in the right quarters every one could soon find the approved article. It was a mistake for persons to say that they could not find whole-meal bread that suited their palate.—Dr. Read afterwards spoke, condemning the expensive and useless practice of eating a quantity of meat. He called upon the well-to-do classes to set a healthy example to their poorer neighbours by more largely employing whole-meal bread and cheap and valuable cereals as articles of diet.

## NOTICES AND ANSWERS TO CORRESPONDENTS.

### Editorial Notices.

Contributions are invited upon the various subjects coming within the scope of Diet and Hygiene. Books, pamphlets, &c., for review should be sent as soon as passible, to insure early notice.

The Editor would esteem it a favour if correspondents forwarding magazines and newspapers containing items of interest would mark any portions to which they specially desire to direct attention.

British Health-Resorts.—Our readers will observe that we purpose to make a a special feature of the descriptions of different British Health-Resorts and Watering Places, often overlooked and neglected by persons who put themselves to much expense, trouble, and loss of time in visiting Continental spas, instead of availing themselves of the facilities open to them in their own country. No. 1 of Diet and Hygiene contained an account of Leamington, No. 3 will give a description of Bournemouth.

Analytical and Food Department.—In compliance with the wishes of many of our subscribers, arrangements have been made for conducting spectal analyses of articles of food, drink, &c. Terms can be ascertained upon written application to the Editor.

PUBLISHERS' NOTICE.—DIET AND HYGIENE will be Published on the 1st of each month, and Advertisements should be sent in before the 23rd of the preceding month to insure insertion.

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DUBIOUS makes the following inquiry: "Is it better to sleep in a nightcap than without?" We had written the opinion that, except there should be some special reason for the practice, it would be better not to adopt it, when it occurred to our mind that a similar query had been propounded long ago, to no less a personage than Dr. Johnson. "No man knows," replied the learned doctor, probably in a sarcastic tone, "perhaps no man ever will."

M.D.—You would get the Spanish and Italian works you mention, through either Baillière & Co., or Hachette.

WORSE THAN EVER.—We should have been surprised if you could have honestly described yourself otherwise after the extraordinary amount of self-treatment that you say you have gone through. You should read the verses "Air and Light, A Doctor's Story," published in No. 1, and apply the moral to yourself.

THAMES PURIFICATION.—Our correspondent, C.E., and all interested in this very important subject should read a valuable paper published in the December *Fortnightly*, and contributed by Dr. B. W. Richardson. Dr. Richardson discusses the main drainage scheme; and demonstrates how the Thames may be purified, and London become the best-drained city in the world.

SALUS.—Wherever overcrowding and other sanitary evils exist the death-rate must be higher than it ought to be. In New York, for instance, the working-class quarter of the city has a population of 85,000 per square mile, and the death-rate in its Mulberry-bend district is 65 per 1,000 annually. The laws of Nature cannot be broken with impunity.

ADULTERATION.—As long ago as the reign of Henry III. a law was passed, enacting the punishment of bakers or brewers who tampered with the quality or quantity of the articles in which they dealt; the dishonest baker being consigned to the pillory, the roguish brewer to the tumbrel, (a cart used for the conveyance of culprits,) where neither of them would get much pity from the exasperated crowd of spectators; and, for many centuries rigid laws were in force for the punishment of traders selling unwholesome food.

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THE INFANTS' KNAPKENETTE is the distinctive name given to an excellent article recently introduced by Messrs. Southall Brothers & Barclay, Birmingham, the patentees of the well-known and equally widely appreciated Sanitary Towels for Ladies. The Knapkenette is composed of very soft, downy material, and as it possesses special absorbent and antiseptic properties, it should form part of the outfit of every well-regulated nursery; being cleanly, and comfortable, while it prevents soreness, chafing, or chill.

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# Diet and Hygiene:

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OF

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## TEA AND COFFEE.

THE Tea plant has often been described as constituted of two distinct species, *Thea Nigra*, and *Thea Viridis;* but this is a fallacy, for the difference between black and green tea is solely due to the manner in which the leaves, gathered precisely in the same way, are treated in drying. Indeed, it is an interesting chemical fact, that nearly all the various qualities, such as colour, flavour, and odour, may be produced according to the processes adopted in the preparation and roasting of the leaves obtained from the same plants. For making green tea there is only one rapid roasting at a low heat; in the case of the black tea, the leaves are exposed to the air for some time, so as to undergo a kind of fermentation by the action of oxygen before the process of heating, and they are then subject to two slow roastings. Certain adulterations also play an important part in the production of the difference of colour of the leaves, as well as with the action of the latter on the system, the green being generally acted upon by Prussian blue and sulphate of lime, while the black are sometimes, though rarely, faced with plumbago. Traces of copper may be occasionally found present in samples of green tea, and it is a matter of fact that the Chinese sometimes—perhaps more often than is supposed—prepare the leaves for the green tea in copper vessels under a considerable degree of dry heat, so that the acrid juice of the tea acts on the copper pans, and leads to the production of a green

tinge on the surface of the leaves. As these adulterations are carried on in China, English merchants have but little choice in the matter beyond selecting the best teas within their reach in that country. Sometimes a common sort of black tea is converted into green by entirely artificial means, and this is known technically as "Canton tea."

Three principal chemical substances exist in tea. First, A *fragrant volatile oil*, which, in excess, possesses poisonous properties, and has a powerful narcotic as well as a subsequent sedative influence; in moderate quantities this substance has a stimulating effect upon the brain and spine. Experiments conducted by Dr. Lettsom showed that this oil would produce paralysis of the hinder extremities of a frog, and when injected into its abdominal cavity even caused death. The peculiar intoxicating influence which strong green tea exercises on many persons is due to this oil. Second, *Tannic Acid.* How far this affects the human system, when taken in combination with the other ingredients of tea has not been definitely ascertained; nor is it certain to what extent it promotes its neurotic or nutritious qualities; but it certainly does not act as an astringent to the extent which is generally supposed. Third, *Thein.* In their average condition, the teas of commerce contain about two per cent. of thein. This is a crystalline substance which sublimes when heated, and is soluble in both water and alcohol. Its taste is slightly bitter, but it has scarcely any odour. Nitrogen enters largely into its chemical composition. As regards its action upon the human system, it tends to arrest the rapid consumption of tissue both by retarding decay and promoting renovation, thus relieving the feeling of exhaustion which is brought on by continuous mental or physical exertion. According to Böcker, Miller, and other eminent chemical authorities, the administration of thein in moderate quantities tends to minimise the process of combustion going on in the system. Tea, therefore, economises food, and the appetite is satisfied by a smaller relative amount of it, whilst, at the same time, the over-active bodily functions are tranquillised, and the mind is exhilarated.

Professor Johnston states that half an ounce of good tea, which would contain about four grains of thein, may be taken in a day by most adults with beneficial effects; but if twice this quantity, then bringing the thein up to eight grains, be taken, the pulse becomes

more frequent and trembling comes on. Simultaneously, the imagination is excited, and after a while the thoughts wander, imaginary visions begin to be seen and a peculiar species of intoxication results.

As to the dietetic properties of tea and coffee,—the caffein in which is identical with thein,—no single ingredient in their composition can be said to produce their effects on the system, but rather the combination of all. Some authors are disposed to classify them amongst the sedatives, and some as stimulants ; but the best light in which to consider them is that they act as stimulants on the cerebro-spinal functions, and as sedatives on the ganglionic. The indications for their use depend, therefore, on the existing state of each of these functions. They are most needed in the morning, at the first meal, to arouse the brain, still somewhat torpid after sleep, and at the same time to moderate the renewed and excessive activity of the organic functions ; and for corresponding reasons they are taken after the chief meal during the latter part of the day. They should not be taken very late in the evening, or a sleepless night will be the result, as well as various distressing sensations. There are very few people who have not experienced these symptoms, which are almost always, though not correctly, attributed to the strength or quality of the tea. On the other hand, when the brain is unusually depressed or exhausted, and the ganglionic system is in a high state of activity, tea will sometimes even induce sleep by relieving such abnormal excitability. As to the wakefulness which is so necessary for those who desire to keep watch or to study at night, and which is induced by the brain being excited to increased activity by the agency of strong tea or coffee, it is in the experience of many persons that they oftentimes act in a way the reverse of what is desired ; that is to say, no effect whatever is produced for a long time, and then after the individual has retired to bed in despair, the anti-soporific influence commences and continues for greater part of the night.

In favourable circumstances, and in moderate quantities, the heart's action and the vascular system generally are tranquillised, the pulse is lowered, and the mind is exhilarated. Great mental fatigue and exhaustion from bodily exercise are materially removed. During the Franco-German war, the German army surgeons spoke most highly of the beneficial influence of hot tea and coffee, as

compared with alcoholic drinks, in calming the mind, relieving the stiffness of limbs wearied by long marches, and obviating the ill effects of sleeping in wet clothes. Similarly encomiastic reports have been made by British army surgeons in some of our own campaigns, notably in the Ashantee and Egyptian expeditions. Tea and coffee also exercise considerable protective influence against malaria and miasma, and their invigorating action is not succeeded by subsequent depression or collapse.

In making hot infusions of tea or coffee, we must not leave out of consideration the great salutary effect on water, for, unhappily, it is too true that the more we know of cold water for drinking purposes, the more we find that without the greatest care in selecting and purifying it, there is nothing we can ordinarily drink, which is fraught with so much danger.

Although tea and coffee are in such extensive use as daily beverages, and are so singularly useful, they are apt to disagree with very many persons at times, and their abuse is then followed by distressing consequences, such as palpitation, nervousness, flatulence, sleeplessness, impaired appetite, diminished strength, and hypochondriasis. But, in many cases, these symptoms may be traced to the employment of tea of bad quality, or which has been badly prepared, —particularly if too large a proportion of hot water has been added, This last-named error in preparation gives rise to a very considerable number of the cases of dyspepsia, with general debility and nervousness, so frequent amongst the out-patients of our hospitals and dispensaries.

As is the case with most articles of universal consumption, faulty preparation will spoil the best sorts of either tea or coffee, and a few remarks on this subject will not be out of place. First, with regard to tea. The tea-pot should be scrupulously cleansed of all leaves from previous use ; it should be rinsed out with boiling water, in order to thoroughly warm it, before putting in fresh, dry leaves ; next, care should be had that the water should be boiling (although not long in that condition) before it is poured upon the leaves ; finally, let the infusion stand for six minutes, then well stir the leaves, and let it remain four minutes longer before pouring out. Coffee should be freshly ground, and free from adulteration with chicory ; the only way to make sure of both these points is for the consumer to

purchase the coffee berries, and to have them freshly ground as required. In a spirit of ignorance or obstinacy the authorities permit the admixture of chicory with coffee, causing much adulteration, especially in the "French Coffees." At the present date chicory can be bought at £16 or £17 a ton, while the same quantity of coffee would cost from £90 to £95. Is there room for wonder that coffee is largely adulterated? Besides chicory other adulterations, such as locust beans and common sugar, are freely employed by unscrupulous makers.

It is, doubtless, due to these circumstances that the consumption of coffee in this country is so small as compared with other countries. The average amount of coffee consumed per head of the population is 15 oz. in England, 2¾ lbs. in France, 5 lbs. in Germany, and 7¾ lbs. in the United States. On the other hand, according to some interesting statistics given by Mr. J. Loudon Shand, in a recent lecture at the Colonial Institute, Britain consumes 4½ lbs. of tea per head of the population. Other countries mentioned by Mr. Shand range as follows:—Australian colonies, (who, by the bye, ever read a book about Australia, in which "tea and dampers,"—a kind of flour-cake, —did not often figure?) 7 lbs. 11 oz.; New Zealand, 7 lbs. 4 oz.; United States, 1 lb. 6 oz.; and, then, a rapid decline, as regards other countries, until we encounter at the bottom of the list Spain, with an annual consumption of ⅙ of an ounce.

It is a note-worthy fact that the British-grown teas of India and Ceylon are rapidly displacing the imports from China and Java. In 1867, the percentage of British-grown tea imported into this country was only 6; now, it is 50. It will enable our readers the better to realise this enormous development of the growth of tea in Ceylon, if we state that the quantity sent out of that island, seven years ago, was 114,845 lbs.; since then, the amount has risen to 13,500,000 lbs. annually.

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SATISFACTORY REPORT.—The report of Dr. Adams, the county analyst for Kent for the last quarter states that 142 samples of food had been analysed, of which only 13 (or 9·15 per cent.) were certified as adulterated. This is, with one exception, the lowest average of adulterations on record.

# THE EMPLOYMENT OF WOMEN FROM A SANITARIAN'S POINT OF VIEW.

By Dr. Alfred J. H. Crespi, of Wimborne.
*Late Editor of the "Sanitary Review."*

The employment of women has long passed out of the field of speculation into that of practical life. Thousands of women have now embarked on the great sea of commercial and professional competition. The Universities and some of the Professions have reluctantly and ungraciously opened their doors, and though allowance must no doubt be made for the superior energy and ability of the women who have passed the ordeal of severe examinations, their success has been conspicuous enough more than merely to justify the greater freedom of the present day. The employment of women must now be left to the free haggling of the open market: it is of no use for anyone to oppose great social reforms: they are certain to take place, because those opposed to them and fearing that their own special interests will suffer, are few compared with the many who are indifferent and won't exert themselves, and the large number who are in favour of reforms—partly from a feeling of chivalry, partly from one of sympathy and fair-play. Common sense undoubtedly demands that women should be free and allowed to make their own way in fighting the battle of life.

But the problem is not altogether solved. It is natural that women should marry, and it is the rule for attractive girls to get engaged, and what is the almost invariable result? that unconsciously they relax their efforts and abandon their profession or calling. It is very well to talk of married ladies discharging creditably and efficiently the duties of their households, and at the same time carrying on the engrossing and anxious work of a profession. I have been told of ladies, who just laid by for a week or two when confined, but toiled on like martyrs both before and after. Such cases are rare, and must always be rare, the consequences of marriage are too well-known to need dwelling upon, and after marriage ladies find that if their health be not a serious obstacle to constant employment, the care of their children and household is too engrossing leave to leisure for other matters less pressing. I knew a young girl,

considered by her friends exceptionally gifted, and who was afforded many educational advantages : she became engaged to her cousin, and though not married for some years, at once gave up her studies : a sister-in-law of her's, a girl with a peculiarly sweet contralto, and with justice thought capable of getting a large income as a teacher and public singer, has become engaged to a relation, and already, though not intending to get married for some years, her thoughts are wandering and her efforts being relaxed. Any one could multiply such cases a thousand fold.

That married women should work hard in the higher professions and callings is, with rare exceptions, impossible, nor would it be in the interest of their families, and ultimately of the race, that they should. While the difficulties connected with the impaired health of the mother would not be obviated, it would be undesirable that babies should be brought up by hand and entrusted to the care of servants, in those circles, that is, where such a thing would be practicable ; while, of course, it is obvious that most married women belonging to classes not engaged as manual workers, would not be well enough off to employ nursemaids. How could a shop assistant, a post office clerk, or a small shop manager keep a nurse ? Indeed, were not maternal affection to prompt her to look after her own offspring herself, it would not be economically advantageous to neglect her home and children to earn the slender pittance which she could count upon getting. So that it resolves itself into this—that the proper destiny of woman is marriage, and marriage brings with it serious responsibilities and distractions. Most women, unless the conditions of society greatly change, will never be, for any length of time, competitors for employment with and rivals of men, and omitting those exceptional women who never marry, and the few married ones who don't have families, the physiological objections to female employment after marriage are great and valid.

As a *per contra*, however, I draw the reader's attention to the last report of the Registrar-General, and to the marked falling off in the marriage-rate and to the greater age at marriage. Should the present tendency continue, and still more should it increase, should marriage, in other words, become less frequent, and be postponed, when it does occur, to a later age than heretofore, many strong objections to the employment of women will cease to be heard, and

women will be better able to compete with men, and will more often devote themselves to commercial and professional life. Domestic service has always been reserved for women, but it is in the overwhelming majority of cases only a temporary condition, and after marriage domestic service ceases.

In the annual report of the Registrar-General for England and Wales, recently issued, the population of that part of the kingdom in the middle of 1886 is estimated at 27,870,586. On this population all the ratios in the report are based. The excess of births over deaths since the census of 1881 would give a higher population by 75,000 : that modest sum represents the emigration over immigration. The balance may, when the next census is taken, be affected by the influx of poor foreigners, to which England, and more especially London, has lately been subjected. Account must also be taken of the marriage-rate ; this is falling off in so remarkable a manner that the growth of the population cannot fail to be somewhat checked, though against this falling off we have to place the improvements due to better sanitary conditions. In the annual report of the Registrar-General published in February 1887, it was shown that the marriage-rate of 1885 was the lowest since civil registration began, and had only once been paralleled—in 1879. The present report, dealing with 1886, shows a further decline, making the marriage-rate for that year absolutely the lowest on record. The number of persons married was in 1853, at the rate of 17·9 per 1,000. This was the highest rate. In 1882 the rate had dropped to 15·5, and from that time there has been a continual decline, last year showing a rate of 14·1, compared with 14·4 in 1885. The fall in the marriage-rate is coincident with a diminution in the value per head of British exports, also with a lowering of the price of wheat.

Concurrently with the falling off in the marriage rate we find that the age at marriage is advancing. This has been going on for thirteen years. The average age of bachelors and spinsters at marriage in 1886 was the highest recorded. Yet the Registrar-General states that "under-age marriages are still very numerous." Eight per cent. of bachelors, and nearly one-fourth of the spinsters, married in 1886 were under age. Comparing class with class we still find that early marriages are characteristic of the working classes. Working men marry earlier than clerks, clerks earlier than farmers,

and these earlier than the professional and independent classes. Spinsters in humble life marry earlier than those of higher rank. Of all occupations, miners, and "textile hands," marry earliest. In passing up through the different ranks the age rises more rapidly among bachelors than among spinsters. Consequently the discrepancy in age between the bachelor and his bride is greatest in the highest classes. In the statistics of marriage one satisfactory feature is the great diminution of cases in which the register is signed with a mark. Cases of this kind are only a tenth of the total, whereas men who signed with a cross forty years ago were one-third, and women nearly one-half. It is noteworthy that in the agricultural counties men appear to be the worst educated, while in mining and industrial counties, women. The exceptionally low marriage-rate in 1886 accompanied a birth-rate the lowest since 1848. The rate was then as now, 32·4 per 1,000. The death-rate of 1886 was the lowest recorded, with the exception of 1881 and 1885. In 1881 the mortality fell slightly below 19 per 1,000. The rate in 1886 is a little above 19. For some reason the male mortality since 1863 has not shown equal diminution with the female. The explanation offered is that more of the male mortality lies outside the sphere benefited by sanitary measures. Men oftener than women, suffer from violence, overwork, drink and excess. Among a thousand of the urban population, 20 die in one year, whereas the rural rate of mortality is only 18 per 1,000. This difference, however, is much less than in former years. The healthiness of towns, measured by the death-rate, is improving more rapidly than the healthiness of rural districts. The towns, however, afforded more room for improvement than the rural districts, and have had to pay heavily for parks and new streets, while the country districts had open fields, green lanes, and broad highways. Towns buy their fresh air at a heavy price, and pay heavily for new streets. But rural districts have drawbacks, and are not so healthy as they ought to be. They suffer from bad water supply, and in the drainage of the dwellings.

It is bad taste to contradict a lady, and an unpardonable offence to argue with her, but why she should be permitted, from the best of motives, without correction, to talk nonsense is incomprehensible. If women are to be the companions and friends of men, and his rivals for employment, they must be treated as his equals, with

courtesy and consideration, but still as equals. Many women admit their inferiority, physical and intellectual to men ; and pride themselves on the deference paid them, and go through life satisfied with being the playthings of their lords. For social customs there are good reasons ; and for the subjection of women, if people like to call it so, there are valid reasons, and to some degree it is unavoidable that they should by the stronger sex be treated as inferiors.

Acts of Parliament cannot break down social customs. The strong will and well-regulated minds of a handful of determined women can do little to put the rank and file of the female sex on an equality with men. As long as the world lasts, women will be physically weaker and less determined than men, and will fare worse in the fierce battle of life. Nevertheless, I cannot accept the present state of things as in any degree satisfactory, and I cannot see why, granting that the female is in some respects inferior to the male sex, the former should not assert its rights, and take its proper position in society. Woman is not in her right place when treated as the slave of man ; she is not in her proper place when trifled with and caressed as a doll. Under the most favourable circumstances a very small interval should separate her from man, and she should always claim to be, as she is now sometimes, his trusted friend and beloved companion.

As a consequence of the customs of society and of the consideration paid to women it is difficult for ladies of education and good birth to find congenial occupation before marriage. A duke's son enters the army, and is not degraded ; but a village surgeon's daughters, or a poor vicar's grown-up girls, can do little to earn money. Whether from the peculiarities of physical constitution, or the education she receives—though of late the methods of education have become much the same for both sexes—a woman, especially in early life, is less accurate, less earnest in the discharge of her duties than a man ; she needs the discipline of responsible and regular employment to fit her for the management of a household and the training up of children. There are few women, I care not whether daughters of tradesmen or of earls—for human nature is much the same everywhere—who would not be the better in after life were they from sixteen to five and twenty engaged in useful, responsible work.

An able man, an Inspector of Schools, however, assures me that,

contrary to the general impression, the women he has examined in the course of his duties, are fully as accurate as male teachers and express themselves far better, though coming from the same social class, while he finds them, when they have had equal advantages and the same training, conspicuously inferior to the latter in science and mathematics. He tells me that women can rarely teach arithmetic while most men can. My own experience—not a small one as an Ambulance Lecturer and Examiner—has been less favourable, and while I have found the handwriting and spelling of female pupils and candidates far superior to those of men, I have been struck by the wearisome prolixity of the former, and their hopeless and gross ignorance of the whole subject, though they generally have far more leisure, fuller instruction, and greater care. A man will in three lines answer a question accurately and fully enough, while a woman will write pages altogether wide of the mark, sometimes not touching the question at all, and conveying to my mind the impression that she had not grasped the principle involved, though she is none the less capable of filling a ream with a cloud of words *about* it, but not *upon* it.

I cannot see that marriage should be the aim of every woman, or that it should be treated as the consummation of every woman's life. Premature marriage, the enervating life led by the majority of well-to-do girls during the wasted years during which they are looking out for a good match, and the consciousness of unfitness to regulate a household are sources of more misery to husbands and wives than has ever been calculated. Women, who fail to get married, are still very commonly regarded as social failures.

It would be preposterous to expect that my remarks on this subject will influence more than two or three readers ; and yet, were only two or three to use any opportunities they had of providing regular and suitable employment for educated women, they would do something towards carrying out those changes I should be glad to see. The world is made up of units, and were a few of the units, who have the opportunity, to introduce reforms, to exert themselves, it would not be many years before this would be a very different world.

Let us look at the employments generally considered suitable for educated women. Those girls of the wealthier classes, not entirely

left to their own devices after leaving school, and who are not able or disposed to devote themselves to husband-hunting, have two or three courses open. They can enter shops, receiving small salaries, and usually living away from home. Only stern necessity will force a girl of refinement and education into a shop; she will scarcely, indeed, serve in her father's shop without thinking herself degraded. Girls too can become dressmakers; but in addition to the wages being small, the work of a menial description, and the hours long, social consideration would be lost by the step, so that few girls of the better classes take, or can be expected to take, to it. Situations as companions, housekeepers, lady helps, trained nurses, and hospital matrons are seldom to be found, and are not suitable for very young ladies. We are driven to the conclusion that the one occupation for middle class girls, and it is overstocked to a painful extent already, is teaching. Scores of thousands of girls find employment as governesses, teachers, and music mistresses; generally they have to leave home, while, from the small remuneration, it can scarcely be said that in these ways a girl obtains a sure, sufficient, and permanent income. It is no use complaining of this state of things. The wiser course is to provide fresh occupations for the comparatively limited number of educated girls who at any one time will require them.

Remuneration is regulated by laws, which underlie human nature, and which neither Acts of Parliament nor social reforms can materially alter. Dr. Johnson was at a loss to explain how it came about that women were paid less for work than men, but, generally speaking, when disparity does obtain the work is not identical. Women certainly are paid at rates which would be low for men doing much the same kind of work, but the explanation is the severe competition among women for employment. Take an ordinary nursery governess; any kind of male nursery tutor, were there such a thing, would get £40 or £60 a year if not more, while a female governess gets as little as £12, and is glad of £20 or £30, and delighted to receive £40. Of course, I am speaking of averages, for as a matter of fact many governesses are altogether unpaid, while some get £60 and others over £100. The competitors are too numerous to make employment abundant, and wages must go down accordingly, and no means of artificially raising wages is practicable or of general application.

Popular prejudice must be broken down to make extensive

reforms possible; but were a step in the right direction taken, it would not be long before the advantage of giving girls a few years' training in an office, or in some other useful employment, would be admitted, and we might look for a decidedly better tone among women.

It has been proved that women are capable of useful work as telegraph clerks, collectors of money, and in other similar ways. Why not find employment in banks, high class offices, and Government departments for educated women of intelligence and respectable position on a larger scale then has ever yet been attempted? A comparatively small number of situations would suffice for a long time, and as the majority of female *employées* ultimately marry, the time would come when a considerable proportion of the mothers and wives of the country would have received the discipline which a few years of office work gives. Women would be better qualified for the wear and tear of life, and better mistresses and mothers. But, as early marriage would cease to be a pressing object, many imprudent unions would never take place, or time would be afforded for preparation for a step so disastrous, when rashly entered upon, as marriage. In the last place, it is hardly necessary to add that the remuneration women employed as clerk would receive, would, if they were living at home, assist their parents; or, were they dependent on their own exertions for maintenance, their earnings would, with care, support them Every respectable employment opened up for women helps to relieve the distress and misery among those girls who have to earn a livelihood in one of the few and ill-remunerated ways now alone possible.

It will be perceived that I advocate some kind of occupation bringing a fixed income, and allowing those engaged in it to live at home. The worst of most of employments reserved for women is that they necessitate removal from home, and thus are of much less use than would be desirable. Again, the importance of the salary being fixed can hardly be over-estimated. The majority of those young ladies who will for many years to come have to depend on their exertions for a livelihood, will not have a fortune, and will be unfit for the uncertainty and competition of the professions, where for the first ten or fifteen years' expenditure outruns income, and where a competence can never be counted upon.

I am aware that the suggestions I am hazarding will not command the approval of the many persons who fancy that literature, the public schools, and the learned professions are good openings for young ladies. As Mrs. Micawber truly remarked, the conclusion she had come to was that Mr. Micawber required a certainty ; his sole source of revenue—a coal business agency producing two shillings and ninepence a fortnight—could not be called remunerative ; and, besides, even that small income was precarious. Just so : most young ladies, eager to enter the profession, would starve while two or three favoured rivals were forcing their way to fame and comparative wealth. The professions are particularly uncertain, and many a professional man of good ability, and spending largely, earns a beggarly pittance during his earlier years. Let those young ladies who want position and occupation take to professions; but those who expect to live on their earnings must shun employments, more often starvings than livings. What reason is there to believe that, after the first demand for lady doctors and lawyers had been satisfied, those later in the field would fare better than their male rivals ?

Literature is peculiarly precarious. As far as any profession could be open to women, it is open. There are no restrictions keeping women out. Those persons, who, with the kindest intention in the world, suggest literature as the thing for young ladies, can surely not know what they are talking about. To be a successful author requires extraordinary ability, perseverance, knowledge of men and manners, and a command of language which very few women or men possess. Besides, the value of a book or magazine article depends much on the social position and eminence of the writer. This is known to those behind the scenes. Of two articles of equal merit on the same subject, the one, coming from a person of national reputation, might be well paid, while the other would be "gratefully declined" by editors and publishers. Worse than this, is the comparatively little literary work, unless of conspicuous merit, ever paid for. How few ladies, who could write one or two good average papers a week would receive remuneration ? Some magazines of fair standing do not pay at all, or, when they pay, only remunerate their more distinguished contributors. It would be preposterous for thousands of young ladies to take to literature with any expectation that it would be a source of income ; not one in a hundred would

earn a guinea a week, and not one in twenty would get her articles printed. I am again forced to the conclusion that a large number of respectable and fairly remunerated situations, which a woman of good average ability could successfully undertake, are urgently needed.

Supposing that many women were to enter occupations from which a fair income could be obtained, might there not be evils from their so doing? I cannot see that there would; at any rate, the advantages would counterbalance the evils, whatever they were, twenty times over. Many young men, who rashly launch into the sea of matrimony, would wait, were they at liberty to do so—were their *fiancées*, in other words, able to support themselves for a few years. But the young lady cannot wait, and the fatal step is taken. How much misery results from imprudent marriages? How many careers are in consequence irretrievably blighted?

There is a good deal of talk about love in a cottage, and that kind of thing. Few young ladies, who have been disposed of by needy parents, approve of a small income, when it falls to their lot, and then what unjust reproaches are heaped on the husband, painfully toiling his way to competence; how little sympathy does that husband receive from her who has taken him for better or worse, but who generally forgets that poverty is as trying to him as to her. It is strange too how crude are the notions of young girls—as to the amount of spending in a small income. Well-to-do girls actually talk of living on £70 a year and doing *well* on £200. No! better for themselves, better for men, that women should have respectable, well-remunerated occupations open to them, so that there would be less need of and less excuse for imprudent unions, and better opportunities for acquiring that discipline and experience which a wife especially needs.

## ODD FOODS.

Few things are more difficult than to interest general readers in questions relating to food. Everyone is compelled to take several meals a day, a large proportion of the national income is expended in food, and perhaps there is greater room for economy in the

arrangement of meals and the preparation of food than in any other item of household expenditure, and, nevertheless, few people will seriously consider anything relating to food supply. Food may be regarded in many ways, and curious to say much amusement may be got from considering the strange articles that in one part of the world or another are used at table. Our intercourse with foreign nations is so great and so many of our people are resident abroad that we are brought in contact with more strange foods than perhaps any other nation. Four millions of Britons are, it is computed, resident abroad, and in addition, hundreds of thousands every year wander off to foreign countries, and see, although they may not taste, the singular things that man continues to take pleasure in and which he eats without loathing.

Englishmen are conservative to a degree, and while naturally turning with disgust from toads, snakes, and carrion, in spite of all the attractions of appetising foreign cookery, we should expect that the unusual opportunities which foreign intercourse and commercial relations give us would lead to constant additions to the national dietary. This is not the case, and the introduction of fresh foreign dishes is a rare event, while few of the delicious fruits and singular foods that have often given the Englishman pleasure abroad are seen on his table after his return home. Tomatoes, a cheap and pleasant fruit, are getting more plentiful and oftener make their appearance on middle class tables, although they are sold at an exorbitant price, but bananas are not much used by the middle classes, while West Indian fruits are hardly ever seen. Melons are at last forcing their way: pineapples are cheap and abundant, oranges and lemons are being used in yearly increasing quantities and so are dates, figs, almonds and raisins; but there is still great scope for intelligent enterprise, and there are many other fruits and foods that could be imported in great abundance and at low prices, and which would at any rate give increased variety to our food.

My object in this paper is not to give any fresh information about familiar foods, nor to draw up tables of foods giving their ingredients, cost and dietetic value, but to place before the reader some curious facts relating to out-of-the-way foods, most of them of such a character that no one would dream of recommending them for general use.

That which "is one man's poison is another man's food," is a trite enough saying, but it conveys volumes: and signifies that all the articles of diet used in different parts of the world are harmless; nay, that they are actually nutritious and wholesome. The dishes which we Englishmen devour and fancy man's proper food, may be an abomination to persons of different race and creed; and the food eaten with relish in distant lands may fill us with disgust. Eating and drinking are greatly matters of custom, and no rule can be framed that is absolutely right, and none entirely wrong. Man's natural food, what is it, after all, but the diet which chance, or custom, or necessity places within his reach. One man eats fish, another flesh, a third fowl, a fourth fruit, and all thrive, not equally, still all thrive, proving thereby the vastness of the resources which man claims as his own. As far as is known no kind of bird is absolutely unwholesome; at least none is poisonous. Few four-footed animals are uneatable, and it is perhaps only among fishes and fruits that we find poisons. There are fish, principally, however, denizens of tropical seas, that at all seasons will, when eaten, destroy human life: other species are poisonous only at certain periods of the year, and, still more extraordinary, individuals of some species are unwholesome while others of the same species are wholesome. In the case of fish it is not easy to offer a satisfactory explanation of these peculiarities. The health of the fish at the time of its capture, the food on which it had been feeding, or even some idiosyncracy on the part of the eater, may be factors in the result. When it comes to vegetable products we can then generally lay our finger on the chemical principle that occasions death. Amongst those terrible secrets of nature which we shall probably never clear up, are the objects that were gained by giving strychnine, nicotine, morphine, and atropine properties so deadly that a few grains destroy life. Why will an infinitesimal dose of nux vomica convulse the frame of the strongest man, and bring his existence to an almost instantaneous close, but with such indescribable agony and awful spasms of the muscles that no death more full of horrors can be conceived? Again, why is prussic acid so pleasant to the smell, so speedily fatal when swallowed? Shall we ever know?

Seaweeds are eaten on the coasts of Scotland and of Ireland in

large quantities, and though unpalatable and flavourless are, at times, the chief food of some of the very poor. When dry they are richer than oatmeal or Indian corn in nitrogenous constituents, and, indeed, they rank among the most nutritious of all vegetable foods. Laver is, perhaps, an exception to the rule, and is a favorite condiment with the rich. I have known people eat it in large quantities with much relish. To prepare seaweed for the table, they should be steeped in water to remove the salt with which they are impregnated, and the addition of a little carbonate of soda will remove the bitter taste which to some people is most disagreeable. They should then be stewed in milk or water till they become quite mucilaginous, and they are best flavoured with vinegar or pepper. Under the name of *marine sauces* lavers were at one time esteemed a great delicacy in London. Some lichens are, also, used in the Arctic regions, and Professor Stanberg, of Sweden, has recently directed attention to the nutritive properties of lichens. Iceland moss when deprived of its bitterness and in conjunction with rye meal is said to make a cheap and nutritious bread, but one of no importance to England in these days of cheap flour, when the poorest get all they need. Fungi are freely eaten, though in England less attention is paid to the subject than it deserves, and few kinds appear at table. The common field agaric every one knows, but the most excellent kind is the lovely Lactarius Deliciosus: the latter unfortunately cannot, like the Agaricus Campestris, be cultivated, and, therefore, the market is entirely dependent upon the uncertain and small supplies, which chance or good fortune places within the grasp of the mushroom gatherer.

The strangest food a human being could eat is his brother man. Fortunately, cannibalism, although once commoner than at present, is now confined to the most degraded tribes of the South Sea Islands, and to some small districts of Central Africa. St. Jerome accused the Attcotti, a Scotch Clan, of preferring the shepherd to his flock, and considering the cold-blooded atrocity for which those cruel North British tribes were long infamous, the charge was, doubtless, well founded. Some traces of this revolting practice lingered among the Scotch until comparatively recently ; at least they must blame one of their own countrymen—Robert Lindsay, of Pitscottie,—for

traducing their character, for he is responsible for the report. To come to foods less horrible than man, whose trials and disappointments are sufficiently severe to exempt his body from serving as aliment to his fellows. The lion is eaten by some African races, but its flesh is in small favour. The Zulus find carrion so much to their liking that, according to Dr. Colenso, they apply to food peopled by large colonies of grubs the expressive word "uborni;' in their uncouth jargon signifying "great happiness." David Livingstone, however, reminds us that the aboriginal Australians and the Hottentots prefer the intestines of animals, and adds that "it is curious that this is the part wild animals always begin with, and that it is also the first choice of our men." The hippopotamus is a favourite meat of the Africans when they can catch this unwieldy river monster; when young its flesh is good and palatable, but with advancing years it becomes coarse and unpleasant. The Abyssinians find the rhinoceros much to their liking; so do they that of the elephant, which is also eaten in Sumatra. Dr. Livingstone speaks of the elephant's foot as delicious. "We had the foot," says the doctor, "cooked for breakfast next morning, and found it delicious. It is a whitish mass, slightly gelatinous, and sweet, like marrow. A long march to prevent biliousness is a wise precaution after a meal of elephant's foot. Elephant's tongue and trunk are also good, and after long simmering much resemble the humps of a buffalo and the tongue of an ox, but all the other meat is tough, and from its peculiar flavour only to be eaten by a hungry man."

The bison, once so plentiful in America, but now almost extinct, may be regarded as the representative of the ox. Probably few of the people who, at the American Exhibition last summer, saw some poor survivors of the millions that once roamed the American plains were charmed by their appearance. Small, dark, shaggy, they bore little resemblance to the huge monsters whom Cooper described and Catlin depicted with so much power, but I need hardly add that persons who knew what the bison really was admitted that the specimens, which formed one of the principal attractions of the American Exhibition, were thoroughly representative. The fulness of flavour of bison meat is not pleasant to the refined palate, and the meat can hardly be called a luxury, though the hump and tongue are decidedly superior to the remainder of the carcase. The low caste

inhabitants of India would not find fault with the bison, for they not only relish the dog, cat and rat, which some other nations, farther advanced, do not despise, but they find the fox, wolf, leopard and jackal sovoury enough.

The people of Zanzibar stand high for the comprehensive character of their cuisine. Among their delicacies are a small monkey, the *Cercopithecus Griscoviridis*, and a fruit eating bat. Locusts are eaten by the Bedawin of Mesopotamia, and some other Eastern tribes. They are placed on strings and eaten on journeys, with bitter and unleavened bread. The Jews, who were strictly prohibited eating many kinds of food, which common experience teaches us are palatable and wholesome, as well as some that we do not venture to touch, were permitted to eat locusts, "Even of these ye may eat: the locust after his kind, and the bald locust after his kind, and the beetle after his kind, and the grasshopper."-*Lev. xi.*, v. 22. John the Baptist ate locusts and wild honey, and throve exceedingly upon them, poor fellow! till Herod put a period to his marvellous labours. The locust is commonly eaten to this day but only by the very poor; it is thrown into boiling water, and then eaten with salt. To live on locust and wild honey conveys a more vivid picture of extreme poverty and frugality to a traveller in the East than to anyone else.

Among the Greenlanders and Eskimo the seal is one of the chief articles of food: it was formerly eaten in England, although coarse and oily. The porpoise was also an English dish, and the liver of this animal is, when fried, relished by sailors. Another huge sea animal, the walrus, was found to be very palatable by Arctic explorers, and is largely consumed by the Eskimo. The Japanese, New Zealanders and Western Australians find the whale good eating, and the Eskimo, I need hardly remind the reader, highly approve of blubber, and devour it wholesale. The narwhal or sea unicorn is one of the Greenlander's dainties, while the Siberians and the Eskimo, those omnivorous consumers of everything that they can get, live in part on the flesh of the reindeer.

The foregoing do not exhaust the strange foods of the world. Dogs, cats, horses, lizards, bears, hedgehogs, frogs, otters, skunks, rats, mice, wolves, camels, and, indeed, almost every creature that runs, or flies, or crawls, or swims, is in request in some part of the

world or another, and properly served up is palatable. Surely culinary eccentricity can no further go than do the Germans in preparing Sauer-Kraut. This delicious dish is a vegetable delicacy ; the leaves of cabbages, the stalk and mid-rib having been removed, are cut up and placed in a proper receptacle in layers, with plenty of salt between : the strange mess is next subjected to pressure, and allowed to remain until it has become quite sour from acid fermentation, then, being fit for food, and, doubtless, as wholesome as it can ever become, it is stewed in its own liquor, and eaten with many deep German ejaculations expressive of the entire satisfaction of the gourmand.

Let us come to our own civilised land, where we don't eat sauer-kraut and blubber, bird's nests and puppies, and we shall find some strange foods. The hedgehog, a favourite dish in Barbary, and not disapproved of in Spain, is eaten by Gipsies. Squirrels, too, are occasionally cooked in this country, and are certainly most delicious and fully as palatable as hare ; it is even said that frogs—the *Rana esculanta*—are often eaten in the North of England, while we know that the poor turtle fares no better when the aldermen of the City get him within their clutches. We don't eat toads, but negroes do, and consider them very palatable. Sharks and crocodiles are good eating, and in the North of Scotland the small, smooth hound shark it often eaten, and is esteemed a dainty, while opulent Chinese greatly enjoy the fins of another species of the same formidable looking fish.

Bees, grubs, white ants, grasshoppers, locusts, spiders, caterpillars, and even the chrysalis of the silkworm are all eaten, and in the South of Europe during Lent the vineyard snail is in request, and if rumour does not err, cockchafers, delicately preserved in sugar, are looked upon as delicious sweetmeats in at least one highly civilized European country.

"The sense of satiety is produced in us," says Christopher North, "by three platefuls of hotch-potch ; and to the eyes of an ordinary observer our dinner would seem to be at an end ; but no ; strictly speaking, it is just going to begin. About an hour ago, did we, standing on the very beautiful bridge of Perth, see that identical salmon, with his back fin just visible above the translucent tide, arrowing up the Tay, bold as a bridegroom, and nothing

doubting that he should spend his honeymoon among the gravel beds of Kinniural or Monlenearn, or the rocky sofas of the Tummel, or the green marble couches of the Till."

"What has now become of the sense of satiety? John—the castors!—mustard—vinegar—cayenne—catsup—peas and potates, with a very little butter—the biscuit called 'ruste,' and the memory of the hotch-potch is as that of Great Babylon the Great. Sense of satiety, indeed!—We have seen it for a moment existing on the disappearance of the hotch-potch—dying on the appearance of the Tay salmon—once more noticeable as the last plate of the noble fish melted away—extinguished suddenly by the vision of the venison—again felt for an instant, and but for an instant, for a brace and a half of as fine grouse as ever expanded their voluptuous bosoms to be devoured by hungry love."

The inexhaustible variety of food has not been greater than the vast amounts consumed. Long ago Dr. Kitchener advised people to eat until there was a sense of satiety: change of diet being a whip to the appetite, and thus the feeling of satiety might be experienced a dozen times in the course of a banquet. The old proverb says that it's an ill wind that does not blow someone some good, and the variety of dishes and the keen appreciation in which they are held by the richer classes, certainly replenish the slender finances of many a rising physician, who, were there greater abstinence, would have far less to do. Gout and dyspepsia are valuable complaints to the doctor, and great friends of the undertaker.

To conclude. During the last siege of Paris every kind of eatable was at famine prices, and nothing that had life was permitted to escape. Twelve hundred dogs disappeared during the siege in a manner unwonted in that city, and it is said their flesh was much relished; 5,000 cats also disappeared, and made dishes as savoury as, or even more savoury than, young rabbits or hares; two bears vanished in the same way, and their flesh was compared to pork; 65,000 horses, jocularly called by the Parisians, siege-venison, furnished a large supply of food during the winter of 1870-1. Three elephants followed or preceded, I know not which, the horses, and were highly commended, and with them went 1,000 donkeys and 2,000 mules. The last were said to be delicious, far more delicate than beef; but let not the reader forget that the famous Bologna sausages are in part

made of the flesh of donkeys. Three kangaroos were eaten in the siege, and were much relished; nor is this astonishing, for in Australia kangaroo-tail soup is preferred to ox-tail soup, and certainly in my humble judgment is far more palatable. And, in the last place, the Parisians made short work of a seal, and said it resembled lamb. Well, after all that these illustrations prove, my readers will admit that everything that lives can be eaten by man.

S. U. M.

## TECHNICAL EDUCATION.

By Mrs. W. T. Greenup,
*Examiner to the South Kensington School of Cookery.*

Technical education has become one of the leading topics of the day. Employers and employed are warmly discussing it; philanthropists are endeavouring to promote it; and the subject has already claimed a large share of the attention of the House of Commons. One finds, too, that even the intelligent schoolboys of our land, small politicians though they be, are quite on the alert to hear what is likely to be the issue of the Techinical Education Bill. They are already building castles in the air, and thinking that, if their own genius be supplemented by a technical training, many from their ranks will surprise the world, and, perhaps, eclipse all former Stephensons, Edisons, Wrens, and Brunels. Once set the average English boy on his dignity, and he will soon think that he *may* be somebody some day. Present to him the fact that the peace and safety of our nation are, in a great measure, maintained by and due to the superiority of our well-trained naval and military forces, and there will be little difficulty in convincing him that England's great name and wealth may be equally well sustained by the superior training of her great army of artisans.

It was stated some time ago in the House of Commons that some 60,000 children would presumably be eligible for technical education under the existing principles of the Bill; but that of this number only 32,000 would be boys. So far all discussions seem to tend to their interests alone. *What is being done for the girls?*

After waiting in vain for some far less obscure individual to do so,

the writer takes up her pen in *alarm*, lest the interests of the 28,000 girls should not be equally considered with those of the 32,000 boys; but not without *hope* that a feeble effort may stir up greater powers to plead and promote the interests of the girls, so far as their technical education is concerned.

A computation recently made shows that there are in England now about three million working women, of whom *one-half* are in domestic service.

A million and a half of domestic servants in the land, and scarcely one in fifty worthy the name! How is this to be accounted for? Chiefly by the fact that they received no technical instruction in domestic matters before they went to service. And, as it is now, so it will be in the future, if the interests of the girls of our elementary schools are left out of the question altogether when the Technical Education Bill is passed. They are compelled to attend school up to a certain age, and, in the case of the majority, they have no chance whatever of learning in their homes the domestic work which will fit them for respectable domestic service. They go to school, learn their lessons, run about the streets at night, and sometimes take a turn at household work, after the fashion in which they have seen their mothers do it before them. They can sew. Oh, yes! have passed the 6th standard in needlework! But, give them the tea things or the dishes to wash, a room to sweep, or a piece of mahogany furniture to clean, and the probability is that you would wish that you had done it yourself.

Such is a very faintly drawn picture of the average English girl who "goes to service," and whom mistresses are expected to house, feed, and *pay well* for the privilege (?) of trying to train them! I say *trying* to train them; for it is a hard matter to get girls out of the habits and notions they have formed by the time they are fifteen or sixteen years of age. Something should be done for the girls long before they reach that age. Their earliest training should be given in the infant school by means of well-chosen interesting object lessons on home and health. These should be continued in a more advanced stage in the upper schools, and afterwards take a practical form when it is time for a girl to leave ordinary school life. A year's training in a technical school would be an incalculable boon to a girl. A certificate of merit from such a school would often

prove to be a good passport to her. There is no doubt that these schools might be almost, if not quite, self-supporting. Many would take advantage of them for evening classes, while the food cooked and clothing made, or re-made, would find ready purchasers.

Many will say, "Something *is* being done, for are they not taught cutting out and sewing, and, in many instances, cookery, too?" Certainly they are; and so far so good. But is there any instance where they are practically taught to make the most of the clothing and food which are likely to cross their every-day path in the position in life in which they are placed? Are they practically taught how to lay out money to the best advantage—how to save some portion of what they have? Are they practically taught how to clean everything coming under the head of household furniture and cooking utensils? Are they taught the Laws of Health in the physiological manner which will show them the consequence of disregarding them? Are they practically taught what to do when sickness does come? Say, to make a poultice, bind up a wound, restore a fainting person, avoid spreading infection, and the many other similar matters which come under the head of "The Domestic Treatment of Simple Ailments?"

Alas! for the ignorance of the very poor (and, we fear, the *not* very poor, too) concerning all these things! The sooner our school girls are practically taught them the better it will be for the welfare of the country.

"Utterly impossible!" does some one say, "for all these things to be taught in schools?" Certainly it is not. It would be a waste of time—nay, perfect folly—to spend a whole hour in pleading for utter impossibilities. Why *should* it be less possible to have Technical Schools of Domestic Economy for the girls than Technical Schools of Engineering, Carpentry, Carving, etc., for the boys?

"But," some may argue, "it is not necessary to train all our school girls for domestic service, for one half, at least, leave school to engage in the various handicrafts in which women are employed, or earn their living behind the counter." True. But here the plea becomes even stronger. Those who go to service *have* the chance of learning household duties. But how little chance have the others! Take, for example, the thousands who are employed in the drapers' and other establishments in London and our large towns. They have no real

*home* life. They never even *see* any household work or cooking done; and, consequently, when they come to have homes of their own, they know not how to keep them thoroughly clean and healthy. As to making the most of things, and cooking a simple dinner, it is out of the question altogether. Take the following instance, one of many which the writer knows to be true. A prepossessing young shopwoman, who had been some years in her situation, married a respectable and fairly well-to-do clerk. A lady customer, whom she had frequently served in the shop, took some interest in her, and called to see how she was getting on in her little home. The lady was not less sorry than amused to hear the relation of the young wife's difficulties. "John," said she, "is very fond of fish, and a day or two ago he brought home a very nice codfish. I did not know how to cook it any other way, so *hung it on the spit and let it roast!* John said it did not taste right. I wish I had been taught when I was a girl!"

Take the poor class of artisans' wives, who, perhaps, as well as their husbands, work in factories. Perhaps some of my readers may have had the privilege of distributing aid among them when there has been a cotton famine, or a great dearth in other trades. Their cry is, very often, "butcher's meat," if asked what form of relief they most wish for. And how do they cook it? Call in at the homes of the majority of those who have had say, a pound of beefsteak, and you will find them holding it on a fork in front of the fire, or, perhaps, placing it in a cold frying-pan over the fire, and leaving it to cook itself quite dry and hard. How they labour over the mastication of it! and, at last, think they will have something else next time, for, *somehow*, meat does not agree with them! And the state of the homes, as regards cleanliness and comfort, is, alas! too often in keeping with the cooking.

Now, while working men's homes are comfortless, and their food badly cooked and unsatisfying, the publicans will thrive. Though our artisans may be made more clever by technical education, a very large number of them will not become more temperate until the character of their homes is changed. Placing them in a position to earn better wages will be simply placing them in the way of greater temptation to intemperance; and, then, how much better off would they or their country be for the advantages of technical education?

If the boys of the present generation are to become better workmen, the girls must be fitted to become better wives and mothers.

The girls are in danger of being overlooked. Is there *no* one to take up their cause? Women cannot legislate, but they can bring their *influence* to bear upon legislation. Some have husbands, brothers, sons, or other near relatives, who are Members of Parliament. Will *they* plead for the girls? Cannot a plea go forth also from the Young Women's Christian Associations, the British Women's Temperance Association, and many other philanthropic institutions of a similar kind?

It would take up too much space, in this small pamphlet to draw a mental picture of a Technical School of Domestic Economy, and to take an imaginary peep into all its departments, from the scullery to the ambulance classes and laundry. Technical Schools, whether for boys or girls, will form a most interesting educational feature in the land, and if in addition to training good workmen and good wives and mothers, we can instil *right principles*—such as will make the British workman honest to the core in the performance of his duties—honest to himself and family by his thriftiness—and the women all that Englishwomen should be for industry, thrift, and common sense in the management of their homes – then England will have reason to be grateful for the passing of a Technical Education Bill. To leave the interests of the girls out of its provisions would be simply a *national calamity!* Who will help to avert it?

## KEF.

It is a fact strange enough, but nevertheless true, that nowadays a greater number of people seem to suffer from some disturbance of the digestive organs, and in proportion to the spread of this evil is the daily increase of remedies offered to the public. One of the many means of improving assimilation, and of promoting nutrition, is *Kef*, or *Kefir*, a remedy which may be relied on when it is properly prepared. It may also be recommended as being moderate in cost.

Kef is a fermented milk, the preparation of which has been known from time immemorial to the mountain inhabitants of the Caucasus,

and by them long kept secret. The word Kefir, or Kyafir, is really an equivalent for the Turkish word Giaour; but it also expresses a "keen sense of delight."

In the preparation of Kef, a yellowish fungus growing on the summit of the Caucasus is used. The origin of this fungus seems to be unknown; it is called by the Caucasians "*The Prophet's Millet.*" This fungus produces, at a certain temperature, a peculiar fermentation in the milk.

Milk, the primitive food of man, containing carbonaceous and nitrogenous compounds, is one of the best means of nutriment, while it is also a curative, especially in cases of debility, and the daily increasing consumption of milk, the efforts made for its improvement by care in feeding cows, and the frequency with which it is ordered by medical men wherever suitable, all tend to prove that it maintains its place as one of the most nutritious articles of diet, whether taken pure or mixed with other ingredients. In no country is milk more highly appreciated than in Russia, with its great pastures and innumerable herds; milk, the flesh of the cattle, and bread form the entire food of the people, so that the greatest attention has always been paid to the production of milk, and besides the articles known to us, such as butter, cheese, etc., the various tribes prepare, each in its own way, some effervescing drink or other from milk, amongst which the Kef, or Kefir, is the one which at present interests us. Kef is made of cow's milk, whereas the other beverages are often prepared from the milk of sheep or mares.

Milk, in its natural state, is found by many people to be difficult of digestion because the albumen curdles, converting it into thick, heavy lumps, while to others again it is unpleasant on account of its vapid taste; but in Kef we have an acid-sweet, sharp, effervescing beverage which most people find palatable, and which can be assimilated by the most delicate patients, as the Kef fermentation has partially done the work of the digestive organs. Unboiled, pure milk contains on an average 87 per cent. of water, 5 per cent. of casein, $4\frac{1}{2}$ per cent. of sugar of milk, 3 per cent. of butyrin, and $\frac{1}{2}$ per cent. of salts. By the addition of Kef, the sugar of milk passes on to alcoholic fermentation, by which carbonic acid and alcohol are formed, and lactic acid fermentation of the other parts of the sugar

occurs, as also the separation of the casein into delicate, soft flakes forming pepsine, so all-important for digestion.

Thus Kef is in reality milk pre-digested, having a most salutary effect on the digestive organs, the lactic acid assisting digestion, the carbonic acid soothing the affected mucous membrane of the stomach and bowels, and strengthening the muscular action, while the alcohol present, though in comparatively a small proportion, is still sufficient in the first place to assist the process of digestion by exciting local nervous energy, and creating a more rapid separation in the juices of the stomach and intestines. It also somewhat retards assimilation, and thus causes fat-formations ; hence we find that patients taking Kef regularly, soon gain in weight.

The fermentation of the Kef is continuous while it is kept in a warm place. At a lower temperature this proceeds more slowly, and if the Kef be placed on ice the fermentation ceases entirely, but recommences as soon as it is removed to a higher temperature. Kef of one day's fermentation (24 hours) is especially recommended for cases of habitual constipation, that of 48 hours for faulty digestion, for insomnia, or as food in wasting diseases, for persons suffering from complaints of the respiratory organs, and also for mothers nursing. That of three days' fermentation has been found particularly useful in arresting diarrhœa.

Kef has very quickly found favour in Germany, where every large town has its Kef factory, and the most surprising results have been obtained by its use. We have known many people who had no real disease, but felt generally weak, low, and desponding, who, after going through a course of Kef, recovered their spirits and strength, and felt equal to any amount of bodily and mental exertion.

Kef is far more palatable than Koumiss, and, moreover, has the advantage of being more economical in price, while its mode of preparation is not open to the various objections which may be urged against Koumiss.

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THE POPULATION OF THE UNITED KINGDOM in the middle of 1887 is estimated at 37,091,564, of which number 28,247,151 were in England and Wales, 3,991,499 in Scotland, and 4,832,914 in Ireland,

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LANDOWNERS IN GREAT BRITIAN.—The preceding figures remind us of some more startling statistics given, some years ago, upon the authority of John Bright. One-fifth of the land in England and Wales is in the hands of 523 landlords, and more than one-half of English and Welsh soil is owned by 4,500 persons. One-fourth of Scotland is held by 24 persons, while seven-tenths are owned by 1,700 landlords. Something wrong here, at any rate !

# BRITISH HEALTH RESORTS.

## No. 3.—BOURNEMOUTH.

THE official opening of the Direct Bournemouth Railway, on the 5th of March, is a good text for an article on that rising West Hants watering-place. Bournemouth has of late been growing in favour, and is competing vigorously with other and older towns over which it has some unquestionable advantages, the chief of these being its comparative newness. Some watering-places, like Weymouth, go back several generations, and the older parts are narrow, crooked and unattractive, but that state of things does not apply to Bournemouth, formerly called Bourne, which has sprung up in the ifetime of people still living, Dr. Wake Smart, of Cranborne, remembers the town when it consisted of only half a dozen houses, and when no expectation of its future renown had entered into the head of the most prophetic. The roads are straight, excellent and broad, the side streets wide and open, and the whole place has a picturesqueness rarely found in English towns. Moreover, the area covered is extensive, and the houses are well-built with ample space around them.

Guide books to Bournemouth abound: the most complete being that of Dr. Horace Dobell, one of the many medical men who have of late years been attracted to the town. We shall not speak with anything but respect for his book, which must have cost him much labour to complete, nor shall we hint that the guide books are couched in terms rather over-flattering. It is an amiable weakness of guide book writers to know only one place, the one in which they reside: the first paragraph of almost every such work might commence thus—"In this beautiful place, snow, fog, and mist are unknown, cold is never experienced, heat never troubles the visitor, rain only descends at night, all the deaths are among strangers, who have come to die, the residents being endowed with immortality." Bournemouth has many advantages of climate and position, and fewer people would leave it, disappointed, were the descriptions given of it more in accordance with fact. But when people are told that at Bournemouth they will find a perfect climate, and that the sun

always shines, even on the coldest days, they cannot fail to be disappointed. Nowhere in the United Kingdom is the winter warm, agreeable, and dry ; nowhere can invalids sit out day after day ; there are wide differences certainly, and the southern and south-western places have decidedly less to complain of than those farther north. For a British Health Resort Bournemouth is greatly favoured, and has many attractions for people who cannot go abroad to winter, but with the rapid cheapening of continental travel, even our most fortunate health resorts feel foreign competition keenly. We shall lay before the reader some valuable tables of temperatures, and other climatological observations, from which he will see the exact position of Bourne.

TABLE I.

Extracted from Mr. Marriott's Tables.

| | ABSOLUTE. | | *Mean Temp.* | *Range Annual.* | *Cloud.* | *Rainy Days.* | *Inches of Rain.* | *Relative Humdty.* |
|---|---|---|---|---|---|---|---|---|
| | *Min.* | *Min.* | | | | | | |
| 1885. | | | | | | | | |
| Alston - - | 80·4 | 5·1 | 42·4 | 75·3 | 7·3 | 225 | 42·26 | 87 |
| Cheadle - - | 82·8 | 21·0 | 45·6 | 61·8 | 6·7 | 201 | 30·25 | 87 |
| Southbourne - | 82·7 | 21·3 | 48·8 | 61·4 | 5·9 | 164 | 27·26 | 81 |
| Torquay - - | 86·3 | 24·8 | 49·6 | 61·5 | 6·4 | 176 | 32·05 | 78 |
| Guernsey - - | 82·8 | 29·1 | 51·4 | 53·7 | 7·0 | 169 | 30·42 | 83 |
| 1886. | | | | | | | | |
| Alston - - | 77·7 | 2·0 | 42·5 | 75·7 | 6·9 | 229 | 63·2 | 83 |
| Cheadle - - | 78·8 | 18·2 | 45·9 | 70·6 | 7·1 | 213 | 36·41 | 87 |
| Southbourne - | 85·2 | 21·4 | 49·0 | 63·8 | 6·0 | 181 | 33·59 | 82 |
| Torquay - - | 82·3 | 24·3 | 49·6 | 58·0 | 5·9 | 193 | 37·75 | — |
| Guernsey - - | 78·1 | 29·2 | 51·5 | 58·9 | 6·7 | 198 | 40·25 | 86 |

TABLE II.

Extracts taken from Mr. Glaisher's Tables for 1886.

| | | ABSOLUTE. | | | MEAN. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | *Max.* | *Min.* | *Range.* | *Max.* | *Min.* | *Temperature* | *Cloud.* | *Rainy days.* |
| Southbourne - | 1st Qr. | 57·5 | 21·5 | 36· | 42·7 | 32·6 | 37·6 | 6·1 | 50 |
| Wolverhampton | „ „ | 60·1 | 13·4 | 46·7 | 39·9 | 28·8 | 34·3 | 8· | 48 |
| Southbourne - | 2nd Qr. | 75·2 | 30·0 | 45·2 | 58·7 | 44·6 | 51· | 5·3 | 39 |
| Wolverhampton | „ „ | 73·9 | 27· | 46·9 | 58·5 | 40·7 | 48· | 7·8 | 43 |
| Southbourne - | 3rd Qr. | 85·2 | 37·9 | 47·3 | 67·6 | 52·9 | 59·6 | 4·6 | 30 |
| Wolverhampton | „ „ | 81·8 | 34·4 | 47·4 | 66·3 | 49 0 | 56·5 | 6·6 | 35 |
| Southbourne - | 4th Qr. | 69·9 | 23·1 | 46·5 | 51·9 | 40·6 | 46·2 | 5·6 | 62 |
| Wolverhampton | „ „ | 70·6 | 19·4 | 51·2 | 48·0 | 36·7 | 42·1 | 7·5 | 53 |

TABLE III.

Complied by Mr. William Marriott.

HOURS OF SUNLIGHT.

| | 1885. | 1886. |
|---|---|---|
| London - - - - | 1018 | 1003 |
| Southbourne - - - | 1524 | 1538 |
| Buxton - - - - | 983 | 679 |
| Ventnor - - - - | 1704 | 1683 |
| Blackpool - - - | 1326 | 1239 |

These tables are on the authority of Mr. Glaisher, F.R.S., and of Mr. William Marriott, the able Assistant Secretary of the Royal Meteorological Society, and cannot be disputed. We are sorry to have to say it, but they dispose by the iron logic of inexorable figures of the countless chapters and articles on the Sicilian beauty of the climate. They show that Bournemouth enjoys a climate three degrees warmer than that of Wolverhampton, with about the same range of temperature, and the same number of rainy days, and not quite such a low absolute minimum. The one respect in which Bournemouth surpasses the Midland towns is, however, in its greatly larger amount of sunlight; in other words, there are twice as many hours of brilliant sunshine at Bourne as at Cheadle or Wolverhampton, and consequently on many days, when it is not tempting to be out in the latter, at Bournemouth out-door exercise is agreeable.

The biting sharpness of the east winds at Bournemouth, a disagreeable feature of the climate of the south coast from Brighton to Penzance, may fairly be set against the small amount of fog experienced near the sea.

We do not want to be captious, but few invalids from a distance go to Bournemouth, or indeed to any southern watering-places, without complaining that they have been deceived. Only let them remember that the climate of the United Kingdom is remarkable for its equability, that the ocean breezes modify it in all districts pretty equally, and that between the extreme South of England and the most northerly of the Scotch Islands the difference of mean temperature for the year is barely six degrees. Contrary to the impression entertained, however, July in the South is 11° Fah.

higher than July in Unst, while the difference in the January temperature is scarcely appreciable. From the beginning of November to the end of March longitude not latitude is the most important factor.

Bournemouth is the name given to a large and somewhat ill-defined area, covered more or less thickly with houses. The western part is called Parkstone, and is in the Parish of Poole: then comes a long narrow district of houses—Branksome, Bournemouth West and Bournemouth East, and farther to the east Boscombe: indeed, from Poole to Christchurch, a distance of nine miles or so, there is a good deal of scattered building. At present Bournemouth is not incorporated, and it is not easy to speak with certainty as to the population: 30,000 is the figure often given, but this must include Poole and Christchurch. The main portion of Bournemouth is curiously shaped, it is long and very narrow, extending full three miles along a straight, handsome thoroughfare, the old Christchurch Road. The town, unlike many other seaside watering-places, is not exactly on, but at a distance of half a mile or more from the sea: at certain spots approaching nearer, and at others being farther. From no part of the town, properly so called, can the water be seen, although a few houses on the east and south cliffs look down on the Beach with its bustling crowds, and its magnificent new pier. There is no road along the sea, though one or two lead down to it: no stately terrace or crescent looks over the sea, and in this respect the contrast between Bournemouth and some other watering-places is curious and startling, and to the stranger there is all the charm of novelty.

In one respect Bournemouth is singularly favoured, indeed, we do not know any other health-resort that compares with it: it is in the cheapness and endless variety of its sea excursions. Without a harbour, without shelter, it seems at first sight the very last town to have such unrivalled advantages, but then, only four miles off, is the capacious and convenient harbour of Poole, and early in the morning till late at night steamers ply from the pier at Bournemouth to Yarmouth, the Needles, Ryde, Ventnor, Cowes, Swanage, Torquay, and, but very rarely, to the French coast. A guinea ticket entitles the holder to all the shorter excursions for the season; this is remarkably cheap.

Another feature is the churches, which seem to be far in excess of the requirements of the scanty population; in the superabundance of its places of worship it resembles Torquay and Brighton. The services are usually ornate and frequent, though the attendance is often small, except on special occasions, when the whole population appears to turn out. Only one of the churches, St. Peter's, has any great architectural pretensions, and it is one of the finest in the diocese: it is striking from its great size, lofty and graceful spire, and abundant handsome ornament.

Bournemouth is not easy to describe: with no central railway station, with scarcely any centre, like an inland town, from which to start, and with no salient features, it does not lend itself easily to the requirements of the descriptive writer. It is wanting in splendid central attractions, as, for example, it has no Derwent Parade like Matlock, no splendid Promenade, no Park or Pittville Gardens like Cheltenham, no Jephson Gardens like Leamington, and no Pulteney Street or Royal Crescent like Bath, but at the same time it is a singularly handsome, clean, well-built attractive place, with a light, sandy soil, quickly drying after rain, many handsome shops, and not a few fine villas, to which constant additions are being made.

Its pine woods have long been a special feature. The soil being so dry and sandy is not remarkable for its deciduous timber, but pines grow well, and many of the side streets, especially on the east cliff, are well shaded and extremely pretty, and in places, where the builders have not been too energetically at work, there are glens and chines that still present a strikingly pretty appearance, totally unlike anything else which we have seen. The rhododendrons too in June are very fine, and the display of blossoms is magnificent. Branksome Chine is especially famous for its rich luxuriance at that pleasant season.

The town abounds in hotels, lodgings, boarding-houses, and doctors: the last have swooped upon the place like vultures. Some of the latest estimates give 41 medical men in active practice among 17,400 people, a proportion that reminds one of Leamington, Cheltenham, and Scarborough. At first sight we might fear that the town was unhealthy, but never was there a greater mistake; there is considerably less sickness, and the death rate is also lower than in most places of equal population. One can only charitably hope that when the town becomes a second Brighton, if more doctors have

not in the meantime come to share in the spoil, the patient and long tried medicos will reap their reward.

Complaints have been rife as to the exorbitant charges for lodgings, a matter of which some of the visitors have had good cause to complain. It is inexcusable that charges should be so high. At ordinary times thousands of rooms are to let, and lodging-house keepers are vociferous in their complaints that the place is empty. As there is no palatial terrace facing the sea, no broad and magnificent promenade, no part of the town should pretend to demand high rents, and we can only regret the imprudence of the lodging-house keepers, which drive many visitors away.

Amusements are not of a high order, and the theatre, one of the prettiest and most tastefully arranged we have ever seen, has just been converted into a nondescript kind of room for miscellaneous entertainments: unfortunately in the transformation its special fitness for the drama has been sacrificed.

Of land excursions the variety is not large. The two favourites are Wimborne, with its magnificent and unique Minster with its central and west towers and library, and the New Forest.

During the summer carriages full of excursionists are plying many times a day to Wimborne, and to Rufus's Stone, the latter 20 miles off. But the most beautiful country of all, the far-famed Park and White Farm at Crichel, and the superb museum at Rushmore, could only be reached from Wimborne, between which and Bournemouth there are 15 trains up and as many down a day. Christchurch Priory is also very grand, and in size, massiveness, and singularity, has no rival nearer than Salisbury Cathedral and Romsey Abbey, the last is, however, not easy to reach, though its splendid proportions and unique architecture make an impression never effaced.

But Bournemouth is a health-resort: for what diseases is it good, when is the season, who should go there? Enquiries on the spot are readily answered, and most encouragingly: it is always in season and good in all complaints, and in truth some visitors are always there, and invalids afflicted with every complaint under the sun are welcomed. Although described as a winter resort it is preeminently a summer favourite. In July it is often full, but in August and September it is crowded, and were the charges more reasonable all the lodgings would be occupied. In winter the place is practically deserted:

there are then no land or sea excursions and not many amusements, so that invalids do not care to come in large numbers. Moreover, the imprudent mis-statements sent forth to the world disappoint most of the people who venture so far in winter. It is hardly wise to call any place the English Nice or the English Mentone, it makes strangers expect so much, and to promise immunity from cold and other climatic disagreeables is still less prudent. With March the weather often becomes bright, and short spells of fine weather may be expected; these increase in length and frequency through April, and from the early part of May to the middle of August there are few grounds of complaint. The autumn after the break up of the weather early in October is often dull and wet, with frequent mild, soft, humid days, in which exercise is pleasant enough—foxy days, they are called by sailors,—days the precursors of gales of rain and wind.

To sum up—Bournemouth is a charming town, rapidly growing in popularity and favour, rather handicapped by the infrequency of trains on the Somerset and Dorset; indeed, there are only three good trains to Bournemouth in the afternoon on that line, and not one in the morning, while from West Bournemouth there are only three good trains in the morning to the north and not one in the afternoon. It is startling to learn that one has to leave Bristol at 6.20 a.m. to get to Bournemouth at 11.15—five hours to do 64 miles or so, while one cannot leave Bournemouth in the afternoon for Bristol or Bath, by any train that travels at good speed—five hours being again required. Much is expected of the Direct Bournemouth Railway from Brockenhurst to the East Station, which avoids the long angle at Ringwood, and the bad road from that quaint old town to Bournemouth. Should the new loop be well worked it will enormously increase the advantages of the town and attract more visitors from the north and from London. Other much needed improvements are the doubling of the whole of the Somerset and Dorset system, and readier access to the north, with fewer delays at Bath and Templecombe; more amusements of a high order, and a pretty little theatre devoted to dramatic purposes. Visitors must not be regarded as mines of wealth: most are only just able to pay their way with economy. The rich few are everywhere welcome, but it is the poor millions whom Bournemouth must not forget to welcome and to provide for.

AN OLD OXONIAN.

# LARD AND ITS ADULTERATION.

By Thomas T. P. Bruce Warren.

It would be difficult to imagine a more innocent looking substance than lard. This fact leads one to ask, with pardonable astonishment, "What can it be mixed with?"

Flour was, sometime ago, the principal article used for fraudulent admixture with lard; chalk, whiting, china-clay, and a few other mineral matters were occasionally met with. These clumsy sophistications are simply "nowhere" compared with the skilful manipulations of the scientific compounder.

I must confess that I see no difference in the intensity of a theft. One man may relieve another, *nolens*, *volens*, of his watch or purse; we have no difficulty to define the character of the successful party in this transaction, but when a man purchases an article and is supplied, knowingly, with a fraudulent imitation of what he has a right to expect, "we beat about the bush" for a mild term to express this form of dishonesty; the only difference between the two cases is, that in the latter there is a *quid pro quo;* the identity of the two cases is confirmed by pecuniary encroachment forming the salient feature in each affair.

Adulterated lard, of the American type, may have been met with almost anywhere, during the last five or six years, and for sometime past it has been unblushingly referred to. We have tolerated the manufacture and sale of fictitious butter as butterine, and as lard is extensively used or its production, we have, unfortunately, given an impetus to the manufacture of "bogus" lard.

A great deal of the following appeared quite recently in a well-known London paper.

A Bill to regulate the manufacture and sale of adulterated lard is now before the Agricultural Committee of the American Congress. The lard industry is a great one in the United States, and it has grown rapidly, though not entirely by the use of the fat of the pig. According to the Cincinnatti Price Current 527,032,000 lbs. were manufactured in the great establishments in 1886-7, or more than 100,000,000 in excess of the production ten years before. This was exclusive of the lard made in farmhouses, of which no account can

be given. Now the makers of genuine pork lard have been sorely pressed by competitors, who mix cotton seed oil and beef or mutton fat with it. About 50,000,000 lbs. of cotton seed oil are annually used in lard factories, which is nearly equal to one-tenth of the total production of lard, genuine and adulterated. The Bill now under consideration, introduced by Senator Dawes, imposes licenses of £200 on a manufacturer of adulterated lard, £100 on a wholesale dealer, and £10 on a retailer. It is further proposed that every package containing this lard shall be branded "adulterated lard."

Following this announcement the Antwerp Board of Trade has represented to the President of the New York Produce Exchange, that the quality of lard has been so much deteriorated by the addition of various fats and oils that the people of Belgium are becoming prejudiced against it. It has been even suggested that American lard will be by law excluded from Belgium and other Continental countries. The answer from New York has a strong moral significance, which we "on this side of the channel" will do well to consider. This reply of the managers of the New York Produce Exchange is to the effect, that while they condemn the branding of the adulterated article as lard, European importers know perfectly well what they are buying, as they pay 25 per cent. less than the price of pure lard, and that they and the retailers are chiefly responsible if consumers are defrauded.

The mawkish sentimentalism we frequently hear expressed about the advantage which "poor people" have in being able to get these cheap (?) and wholesome compounds is a mockery, which shames even the Pharasiacal contentment of "not being as other men are."

I cannot see that the reply from New York is satisfactory. Who framed the temptation? European importers must no doubt answer for a great deal, but the main culpability seems to me of purely American growth. A man concocts a fraud, another uses this to swell his profits. We have here a faithful illustration of the story of Adam and Eve, minus the *tu quoque* principle. The European importers and the retailers have to relieve our brother Jonathan of the onus of this unhappy business, *because* they bought the lard and passed it off! Who is answerable for this codification of commercial morality?

It has been said that figures may prove anything we wish; stil

a little consideration of the figures referred to will be instructive. I maintain that they shew a want of cohesive integrity, and prove that we have been more ridiculously swindled than our Analysts would like to admit, or the Americans themselves would care about our knowing.

The New York Produce Exchange reports that the buyers of adulterated lard pay 25 per cent. less than the price of pure lard. We are told that the cotton oil used in American lard factories is nearly equal to one-tenth of the total production of lard, genuine and adulterated. Now, I wish to know how these statements are to be reconciled, unless we admit that the Americans havé largely profited by this fraud? Will the addition of 10 per cent. of cotton seed oil to genuine lard enable the mixture to be sold for 25 per cent. under the price of genuine lard? Without a moment's hesitation I say *No.* Taking the present market price of cotton seed oil at, approximately, two pence per lb., and assuming that genuine lard has been used, we shall not be far wrong if we allow for an admixture of 10 per cent. cotton oil, a diminished cost of one penny per lb.; the addition of one-third part cotton oil will enable the mixture to be sold for 25 per cent. under the price of genuine lard. I am assuming here that the lard itself is worth about ten pence per lb.

No one wishes to say a word against the wholesome character of cotton oil, but it is a fraud of serious magnitude, when we know that the hard fats of the sheep or bullock are passed off as the fat of the pig. The addition of cotton oil to these hard lard fats enables them to simulate the soft character of lard; pig's fat is added so as to give the mixture the smell of hog's lard.

Lard oil, which is largely imported into this country from America, does not in many cases contain anything but cotton oil, thickened principally with stearine from vegetable oils; in some cases the same oil thickened with pig's fat is met with. The Americans ought to know that this fraud will not be tolerated much longer.

A little reflection will shew that the Americans are so largely interested in the lard industy that they run a serious risk of opening up fresh markets of supply. The following statement appeared a few weeks ago in a leading London paper:—

"Owing to the shortness of the maize crop there has been a

falling off in the fattening of pigs in the United States during the packing season. According to returns from all the packing centres the number of hogs packed for the whole season just ending will amount to about 5,735,000, as compared with 6,439,000 for the preceding season. But there is not only a reduction of about 700,000 hogs to reckon upon ; the weight of those packed is said to be 10 lbs. each below average."

It is easy from this to understand why it is that the Bill as proposed by Senator Dawes is so very stringent. A few unprincipled manufacturers can easily paralyze an important industry ; this ought to be sharply dealt with, if America is to retain the position of the lard emporium of Europe. The Bill will no doubt be amended, especially in some of its more obnoxious clauses ; for instance, to brand a package "adulterated lard" is almost as bad as flourishing a naked light in a powder magazine; still it shews that our American friends are alive to the importance of this matter, and every well-wisher of America must hope that they will deal with this fraud in an unflinching spirit of determination.

It is rather amusing, when we bear in mind the elaborate provisions of the Food and Drugs Acts, 1875, to know that such an important article of food as lard, has been so scandalously adulterated.

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LENTIL-ALMO BREAD.—Under this name Mr. Preston, of Ramsgate, has brought out a novel kind of bread containing, in addition to the usual ingredients of bread, lentil flour and oil of sweet almonds. Lentils are specially nutritious and easy of digestion, Sir Lyon Playfair's analysis showed 33 parts of glutten in every 100 parts of ground lentils, whilst ordinary wheat-flour contains only one-third of this quantity, namely 11 parts in 100. The Lentil-Almo bread is very light and agreeable to the taste, and it has the great advantage of keeping moist and fresh longer than bread composed simply of wheaten flour.

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EAR-RINGS.—Dr. Morin in his work, the *Hygiene of Beauty*, has made a dead-set against these ornaments, as often productive of local inflammation, erysipelas, as well as other injuries to the lobe of the ear.

## NEW REMEDIES.

Messrs. Burroughs, Wellcome and Co., of Snow Hill Buildings, London, have submitted some excellent Saccharine Tabloids to us. One corresponds to a lump of loaf sugar: the flavour is agreeable, and when the tabloid is put into the cup first and hot coffee or tea added, the milk or cream not does coagulate in the smallest degree. We refer our readers to the current numbers of *Science Gossip* and the *Provincial Medical Journal* for exhaustive articles on Saccharine and its properties. We have also received samples of compressed tabloids of important drugs. We have given some to delicate patients to taste, and without exception they report most favourably, even such nauseous drugs as Cascara Sagrada being, in this form, agreeable, while their efficacy is not impaired. Compressed tabloids are a step in advance of old and bulky preparations, and will become very popular.

Soden Mineral Pastilles.—We have tested a sample submitted to us by the Manager, 10, Dyer's Buildings, Holborn. They are most palatable and useful, and soothe and clear the throat. It is almost too much to hope that they will come into full use in the face of the keen competition of our busy age, but we wish them all success, and are sure that no one who gives them a trial will be disappointed. They are quite dry and do not readily absorb moisture so that they can be conveniently carried in the pocket, and are at all times ready for use.

## COMPULSORY NOTIFICATION OF INFECTIOUS DISEASES.

By Edward Sergeant, M.R.C.S.,

*Medical Officer of Health for Bolton.*

The basis of all sanitary work for the suppression of infectious disease is formed undoubtedly on information obtained by the prompt notification of the cases of infection as they occur. It is of the utmost importance to get at the starting point of an epidemic so as to nip in the bud its progress, or, if not at first successful, to follow

up the attack until the enemy is subdued. The advantages of notification are now generally acknowledged. In the case of smallpox the disease can almost be kept in check; scarlet fever may be restrained, and there is less danger of the disease being spread broadcast by children attending school in the "peeling stage." In typhoid fever and diphtheria early notification of the existence of disease is of equal importance, and owing to the knowledge gained we are enabled to rectify defective drainage, or take means to prevent the dangers which would arise from polluted water or contaminated milk; isolation of these diseases in the hospital being not always practicable. In the towns where notification has been introduced, the beneficial effect of its operations are spoken of most highly. The experience of Bolton is no exception, and this is borne out by the vital statistics of the past decade as compared with the preceding one. For the ten years since the compulsory powers were obtained in Bolton, 1877-86, the death-rate has been reduced over 4 per 1,000, and the percentage of deaths from the principal zymotic causes to total deaths was 16·2, as against 20·0 for the preceding ten years. The most marked reduction was in the diseases most influenced by notification. The deaths recorded were as follows:—

| | 1877-86. | 1867-76. |
|---|---|---|
| Fever, including typhus and typhoid - | 30 | 54 |
| Smallpox - - - - | 1·4 | 12 |
| Scarlet Fever - - - - | 50 | 104 |

The question most intimately affecting the members of the medical profession is that relating to the responsibility of notifying the existence of infectious disease to the sanitary authority. The dual method of reporting, that is, by placing the duty alike on the occupier and medical attendant, appears the least objectionable. The dual reporting takes away from the medical man the idea that he is violating the interest or privacy of his patient, since he is simply performing a duty which the patient or his friends are equally responsible for carrying out. As a matter of fact we rarely exact a notice from the householder, being satisfied with the first testimony from the medical attendant, who, therefore, assumes a double responsibility. To place the duty of reporting on the householder alone would, in the opinion of many, be unsatisfactory, for delay would undoubtedly occur, and often the notification would be

suppressed, for it would be most difficult to prove that the medical attendant communicated the nature of the disease to the householder, and to put the former in the witness-box to give evidence against his client would be manifestly injudicious, the difficulties attending compulsory notification would be multiplied, and soon it would cease to be reliably carried out. Yet we find eminent men like Dr. Alfred Carpenter advocating the latter course. Having by compulsory notification gained knowledge of the existence of infectious disease, the next step to consider is how to deal with it. The only way is by isolation. In the houses of the better class this may, as a rule, be effected, but it is almost impossible to secure it in a large majority of the cottages of the working class. It, therefore, becomes necessary for the local authority to supply the want by providing special hospitals, which are proved to be of the greatest value, not only in removing the centres of infection from overcrowded districts, but in many instances the patient's recovery may be beneficially influenced by the removal to a suitable hospital provided with all the requisites for the efficient treatment of the sick.

## UNIVERSAL COOKERY AND FOOD EXHIBITION.

The arrangements in connection with this Exhibition have considerably advanced during the past few weeks, and the first list of Patrons and Guarantors is sufficient evidence of the manner in which the efforts of the promoters have been backed up. The Committee consists of well-known men.

The exhibits will be divided into nine classes, including all kinds of made dishes, set pieces, cakes and confectionery, meat, poultry, game, fish, fruit and vegetables, cheese, butter, eggs, milk and cream, table decorations, preserved eatables, condiments, tea, coffee, wines, spirits, liqueurs, beer, cyder, perry, mineral waters, and kitchen requisites. Class VIII. will be devoted to the exhibits of specimens of the work of apprentices to cooks, confectioners, &c. The prizes will consist of gold, silver, and bronze medals, and diplomas.

The Exhibition will be held at the Duke of Wellington's Riding

School,—as many of our readers, doubtless, are aware, a capacious building in Knightsbridge, S.W. The time over which the Exhibition will be held is from April 23rd to April 28th, inclusive. The first three days will be devoted to artistic Cookery and Trade Exhibits, and the remainder of the week to Women Cooks, Apprentices, and Cheap Cookery for the Poor. It has been finally decided to distribute all profits between the French Hospital Building Fund and the Charing Cross Hospital.

Any additional information can be obtained at the offices, 329, Vauxhall Bridge Road, upon application to Mr. C. H. Senn, the energetic and indefatigable honorary secretary.

## NOTES AND NEWS.

BAD NEWS FOR WINE DRINKERS.—According to recent returns the French Vintage of 1887 was worse, even, than that of the previous year, 1886, which was the smallest recorded for more than thirty years past, while the quality is equally as bad as the quantity. The great falling-off, which has been evident for the past five years, is attributed to the ravages of the phylloxera, the mildew, and the black-rot. The yield of the famous vineyards in the Charente and Charente Inféricure, world-known for the excellence of the brandy produced in those districts, has fallen from 300,000,000 gallons to 15,000,000 gallons; and the produce of the Gironde or Bordeaux vineyards, is now only 25,000,000 instead of 100,000,000 as formerly. To make up for the deficiency of the French vintage, the annual imports, principally from Spain and Italy, have risen frrm 6,000,000 to 260,000,000 gallons; while the difficulty of obtaining pure French wines is further increased by the manufacture of more than 120,000,000 gallons of liquid made from dry raisins brought from Greece for that purpose.

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IGNORANCE OF QUACKS.—A correspondent, *Senex*, caps the story of the American quack, given in our last number, with the following anecdote of a man whom he recollects to have seen tried at the Old Bailey for illegal practice. "What are you?' asked the counsel. "A Surgin," was the reply. "How do you spell it?" "Z u r g i n." "*How*? pray excuse me, I did not quite hear." "C u r g i n." (Laughter.) "You bleed people, I suppose?" "Yes, of course I do." "Where do you bleed them?" "In the temporal artery." "Where is the temporal artery?" "Why, in the arm, of course; you don't think you can catch me, do you? I am too good a dentist not to know the temporal artery." (Prolonged laughter.)

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THE REGISTRAR-GENERAL'S RETURNS for 1887, state the increase in the population of England and Wales, during that period, was 355,440, as estimated by the

excess of births over deaths. These figures show 4,000 less than the increase of the previous year. According to the returns of the Board of Trade the number of emigrants from the same parts of the United Kingdom was 127,334, in 1887, thus reducing the actual increase in the population to 183,106, without taking into consideration the number of immigrants during the year. There seems something wrong here. Nearly 500 persons, all healthy and strong, and most of them in the prime of life, daily leaving their native country, to be replaced in the towns, at any rate, by foreigners of all nations. Last year's death-rate was 18·8, which is the lowest annual death-rate recorded since 1837, when the present system of registration was begun. So steadily has the death-rate decreased of late years, owing to improved sanitation, that it is estimated that 400,000 of the persons now living in England and Wales would have been dead at the present date if the rate which prevailed from 1871 to 1880 had been maintained.

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THE LATEST ADDITION TO THE PHARMACOPŒA goes by the name of *Edax rerum*. Some time ago, a London Physician, writing to a lady patient, said "I do not feel justified in taking your money any longer, as I can do you no good. The only remedy for your disease is *Edax rerum*." The doctor referred to the proverb, "*Tempus edax rerum*," and intended thus learnedly to point out that time alone could determine the lady's illness. But, the lady, concluding in her own mind that *Edax rerum* was the name of a medicine, went to a chemist's in the town where she had gone to reside, and asked for some of it to be prepared. The chemist's assistant, taking advantage of the lady's ignorance, made up a bottle of medicine, for which he charged her 7s. 6d. This was continued for a long period, and, whether through the power of faith, aided by hope, or because the disease wore itself out, the lady eventually recovered. Coming up to London, during the Jubilee celebrations, the lady met her old doctor, and warmly thanked him for his kindness and skill in prescribing *Edax rerum*. And so the fraud came to light; and the lady, enraged at having been thus duped, has vented her anger by bringing an action against the unlucky chemist, whose assistant had previously made himself scarce, with the lady's cash in his pocket, for it appears that he kept the affair, as well as the proceeds, to himself.

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BURIAL REFORM.—At a recent meeting of the Council of the Church of England Burial Reform Association, the following resolution was passed unanimously:—"That in the present condition of the public health, it is imperative that a combined effort be made to put a stop to the repulsive, dangerous, and utterly indefeasible practice of storing up in the neighbourhood of large populations vast accumulations of human remains in every stage of arrested and prolonged decay;" and local meetings have been held in pursuance of this object. This resolution reads much like inserting the thin edge of cremation. But, on perusal of the specific reforms proposed by the Association, we find that, apart from those which are directed against excessive show and expenditure, the only measures directed against the practice referred to are, burying the body in a readily perishable coffin, and burial in sufficient soil of a nature to effect the dissolution of the body, instead of imperfect

burial in a vault or in an already crowded grave. These measures are very well, so far as they go, but, as we have already suggested, cremation is the only complete remedy for such a state of things as the Association very properly condemns.

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Railway Fish Rates.—A Bill to secure one uniform scale of rates and charges for carriage of common kinds of fish by the railway companies of the United Kingdom, prepared and brought in by Sir Edward Birkbeck, Mr. Tomlinson, Mr. Hunter, Colonel Nolan, Mr. Barclay, Mr. Mallock, Mr. Gilhooly, and Sir Albert Rollit, has been printed. It provides that the rate for carrying the kinds of fish mentioned in a schedule attached shall not exceed the following :—Wholly by rail : Not exceeding 50 miles. 4d. per cwt. ; 50 to 100 miles, 6d ; 100 to 150 miles, 7½d. ; 150 to 200 miles, 9d. ; and so on, 1½d. per cwt. for each additional 50 miles. Partly by rail and partly by sea : Not exceeding 50 miles, 10d. per cwt.; 50 to 100 miles, 1s.: 100 to 150 miles 1s. 1½d. ; 150 to 200 miles 1s. 3d. ; and so on, 1½d. per cwt. for each additional 50 miles. The fish mentioned in the schedule are :—Bass, bream, catfish, coalfish, cockles, cod, codlings, conger eels, crabs, dabs, dogfish, eels, escallops, flounders, guardfish, gurnets, haddocks, hake, halibut, herrings, lance, lemon soles, lings, mackerel, maids, mussels, oysters (deep sea), periwinkles, pilchards, plaice, pollock, shad, shrimps, skate, sprats, sturgeon, thornbacks, torsk, whelks, whiting, and witches.

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Unsanitary Bedding.—Dr. C. E. Fitzgerald, of Folkestone, points out, in a letter to the *Lancet*, the existence of a dangerous practice to which some of the mysterious outbreaks of fever which so often appear in schools and families may be due. It is that of stuffing mattresses and pillows with miscellaneous scraps of cloth which have not been cleansed before being employed in the manufacture of bedding. He was shown by a lady, who had had a number of bolsters and pillows unpicked in order that they might be cleaned, the materials with which they had been stuffed. These included scraps of dirty black serge, greasy silk, soldiers' coats, dirty worsted braid, soiled linen rags, coloured calico, and even walnut shells and pieces of crinoline wire. The bedding had been bought from an expensive and presumably respectable upholsterer ; and the question arises whether he knew the contents of the pillows when he sold them, or whether he in turn was deceived by the manufacturer. In such a matter the purchaser is helpless. He cannot have every mattress or pillow he buys ripped up to see if it contains nothing but the hair or feathers of which it is said to be made. He must trust to the dealer's honesty, and this, it seems, is a broken reed.

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Wear and Tear.—In a lecture on this subject, Dr. William Stirling, Professor of Physiology in the Victoria University, Manchester, remarked :—" The heart beats for a certain time and rests for a certain time. As a matter of fact the working heart spends two-fifths of its time in action, and three-fifths of its time in rest or a

period of repose. An increase of temperature, no matter how it is caused, leads to an increased waste, leads to an increased tear and wear of all the tissues in the body. The heart in fever beats more rapidly, partly because the temperature is higher; and you will see, therefore, that in fever the heart is subjected to an excessive strain. Hence one of the reasons why prolonged fever produces so serious an effect upon the heart. The heart having so short a time for repairing the waste that goes on in it, is apt to break down under the strain, and in fact, in many cases undergoes an actual change in its structure."

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TRUFFLES IN FRANCE.—French cooks are concerned at the rise in the price of truffles, or rather, strictly speaking, of Perigord truffles, which command twelve shillings a pound. The less savory Piedmont and Dauphine kinds, which are of whitish colour, may be had for six or eight shillings. These are sold to poultrymen and pork butchers to stuff the galantines and Christmas turkeys with. The buyer, who often knows truffles simply by reputation, does not, as a rule, know the difference between the black and the so-called white, but the experienced housekeeper will rather buy the real Perigord, at whatever price, as half a pound of them will impart more flavour and aroma to a fowl or a turkey than a pound or more of the Dauphine substitute. The truffle is so purely a luxury that it should only be used when of prime quality. One should by no means be tempted into purchasing the stuff sold at five shillings a pound by cheap vendors around the Halles. Truffles may be preserved for a fortnight in brandy, and for a couple of months in lard merely hot enough to melt well, by throwing them into it and letting it cool.

## NOTICES AND ANSWERS TO CORRESPONDENTS.

### EDITORIAL NOTICES.

Contributions are invited upon the various subjects coming within the scope of DIET AND HYGIENE. Books, pamphlets, &c., for review should be sent as soon as possible, to insure early notice.

The Editor would esteem it a favour if correspondents forwarding magazines and newspapers containing items of interest would mark any portions to which they specially desire to direct attention.

BRITISH HEALTH-RESORTS.—Our readers will observe that we purpose to make a a special feature of the descriptions of different British Health-Resorts and Watering Places, often overlooked and neglected by persons who put themselves to much expense, trouble, and loss of time in visiting Continental spas, instead of availing themselves of the facilities open to them in their own country. No. 1 of DIET AND HYGIENE contained an account of Leamington; No. 2, of Droitwich and Its Brine Baths.

ANALYTICAL AND FOOD DEPARTMENT.—In compliance with the wishes of many of our subscribers, arrangements have been made for conducting special analyses of articles of food, drink, &c. Terms can be ascertained upon written application to the Editor.

PUBLISHERS' NOTICE. - DIET AND HYGIENE will be Published on the 1st of each month, and Advertisements should be sent in before the 23rd of the preceding month to insure insertion.

CHARGES FOR ADVERTISEMENTS.

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FISH CULTURE.—Our correspondent would probably get the information he desires, by application to Mr. William Burgess, of Malvern Wells, who is the originator and active director of the fishery, known as the Midland Counties Fish Establishment, the object of which is the improvement and cultivation of fish in public waters, more particularly the Severn. This establishment is in good working order, the work connected with the collection of ova has commenced, and a considerable number have been laid down in the tanks of the hatchery. The importation of four millions of ova, including the common trout, the brook char, and the rainbow trout, has been arranged for; other species and vareities of ova will be introduced later on. A large quantity of salmon hatched by the Severn Fishery Board are being reared for that body by Mr. Burgess, in his capacity of Conservator of the river.

PUMILINE.—The address of Messrs. G. and G. Stern, the sole manufacturers of various valuable preparations from the Pumilio pine, is No. 11, Billiter Square, E.C. The extract, essence, &c., can be obtained through any good chemist.

M.D., LIVERPOOL.—We possess a copy of the book you mention, and shall be glad to lend it to you, if you will give full address.

MABEL.—If you desire to adopt the vocation of a nurse, you should apply to be admitted as a probationer at one of the Metropolitan hospitals. The qualifications requisite for a nurse are many and important. Miss Wood, the lady-superintendent of the Hospital for Sick Children has recently declared that it is a "popular delusion" that every woman is, so to speak, born a nurse, and there are six general qualifications which every nurse should possess, viz.—Presence of mind, gentleness, accuracy, memory, observation, and forethought. What would Mrs. Gamp have said of this?

M.P.—The preparation recommended to you must have been Fellows' Syrup of the Hypophosphites, which is the best form in which Phosphorus can be taken. It is an excellent tonic.

ECONOMIC WARNING.—It would be impossible to devise any method more suitable for this purpose than Roberts' Patent Stoves; one of which will heat a good sized apartment, and maintain the temperature at a genial warmth, for 24 hours, at the cost of about one penny.

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# Diet and Hygiene:

A MONTHLY MAGAZINE

OF

FOOD, DIETETICS, & HEALTH.

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## THE IMPORTANCE OF POPULAR SANITARY TEACHING.

IN one of the ablest speeches delivered by Lord Palmerston, when he was Prime Minister, he observed, "If a man were to enter a foreign country, where laws existed, the violation of which would be inevitably followed by pain, imprisonment, or even death, would he not be deemed mad, if he did not take the earliest opportunity to make himself acquainted with these enactments, so that he might avoid the penalties attached to their infringement?" "Yet," continued Lord Palmerston, "there are laws of nature, applicable to the daily pursuits of men, which, if not attended to, inflict bodily pain in the form of disease, imprisonment in the loss of corporeal powers, and even death, through the neglect of those sanitary conditions upon which life depends." In fact, there are millions of persons who daily expose themselves, their families, and every one around them, to the most serious risks, in consequence of their reckless disregard of the plain, simple laws of health.

Amongst the great masses of the people, cleanliness, ventilation, and due consideration for proper clothing and diet, are too commonly treated as matters of no importance; and, as we ascend the social scale, the number of offenders against Nature's rules, is unfortunately not small.

Of late, the enormous importance of Hygiene, as affecting the

comfort, happiness, and prosperity of the community has forced itself upon the attention of some of our leading politicians and philanthropists, while every year furnishes fresh proofs of the necessity and value of understanding and rightly applying its doctrines.

But, still, the progress towards the general dissemination of a knowledge of the laws of health is slower than it might be, with advantage to all, and my object in this brief article is to point out certain ways in which it may be materially and rapidly advanced, namely, by lectures and pamphlets.

The movement should be conducted throughout the length and breadth of the whole kingdom, with the earnestness and enthusiasm of a Propaganda, until the sound principles of sanitary truth had penetrated into every household.

For this purpose local sanitary associations should be formed,—if in connection with a central parent institution, so much the better—frequent lectures should be given upon health-subjects in easily intelligible, popular language, with telling illustrations, and pamphlets should be freely distributed, pointing out clearly and tersely the great advantages derivable to all classes of society from the adoption of proper hygienic measures.

By such a sanitary crusade, presenting claims superior to those of many a far-off mission, thousands of lives would be annually saved, and hundreds of thousands of cases of illness or permanent disablement would be prevented, at a very moderate cost,—so moderate, indeed, that even a Chancellor of the Exchequer might be persuaded into rendering some assistance.

I hold, and have always held, the opinion that the importance of sanitary measures is not to be estimated by the expenses incurred in carrying them out, as in costly schemes of drainage, &c., but that the proper direction of efficient and lasting sanitary reform lies in making the most of the materials ready at hand, and in inculcating sanitary knowledge, leading to wholesome, cleanly habits and precautions, into the minds of the people.

In short, I believe firmly in the truth of the German saying, "*Die Gesundheit einer Nation bedingt ihren Wohlstand*,"—The health of a nation defines its prosperity.

M.P.

# VEGETARIANISM.

By Dr. Alfred J. H. Crespi.

Few subjects can be mentioned on which greater misconceptions exist than that on which I am writing. Without endorsing all the pretensions of vegetarians, it seems to me that by laying before the reader some imformation on this question I can add to his knowledge of the functions of food, and throw some light on the construction of wholesome dietaries.

What is Vegetarianism? The answer that at once suggests itself is,—abstinence from animal food of all descriptions. In its strictest signification that is consistent vegetarianism. But in practice rigid vegetarians go still farther, and abstain from stimulants—alcoholic and non-alcoholic—tobacco, salt, and apparently also, as much as possible, from water. I speak with reserve on this matter, but I can vouch for the fact that, in my presence, at a public meeting, a lecturer of some standing among vegetarians, denounced salt and water as injurious and unnecessary, and contrary to sound vegetarian principles and the laws of health.

A much larger body of vegetarians hold less pronounced opinions, and abstain from food which has had life, that is, they eat eggs, milk and cheese, though they do not take pork or beef. These persons, Professor F. W. Newman tells us, practise Brahminism. They are sometimes called Ovarians and Lactarians, and by their stricter *confrères* are considered to be only one shade better than flesh-eaters.

What are the grounds on which vegetarians defend their position? These,—that it is a sin to destroy life to obtain food, and that health is endangered by eating animal food, which, according to them, is an unnatural diet. That terrible inhumanity is practised in driving animals to market and in killing them, no one can deny, and few persons can think of that cruelty without a shudder. Much, though not all this suffering could be prevented; and animals for human food might be expeditiously and almost painlessly killed. However that be, the question whether it is right or wrong to destroy life to obtain food cannot be settled, or even discussed, in this article. Whether health is or is not more vigorous when vegetable food is alone eaten is not certain, and something more requires to be made out. There is no question, however, that vegetarians are as strong

and as healthy as persons living on a mixed diet. It is unreasonable to expect that, except in a few rare cases, there should be any difference in the *physique* and longevity of the two classes. The reasons for this I shall give later.

A vegetarian diet is not popular, and receives little support from the medical profession, while there is as little doubt that it can be made wholesome, agreeable, and cheap.

At the Vegetarian dining-rooms, at the Liverpool Exhibition of 1886, most excellent and palatable dinners were provided at sixpence apiece. I never partook of any meal more agreeable to the palate, better cooked, and leaving so little to desire. The meal was enough to satify any appetite.

Vegetarians would receive much more support from medical men were they distinguished by a kinder and more conciliatory spirit. They are not satisfied that many physicians admit that vegetarianism is as natural and wholesome as a mixed diet; they insist on doctors practising and preaching abstinence from flesh, and brand them as unprincipled because they refuse to do so. They venture to assert, what no one is justified in doing, that doctors approve of a mixed diet, because it is, say the vegetarians, the surest way of causing disease. They assume that the men to whom public health owes so much, who toil to relieve and prevent sickness, and who often receive, in return for their labour, a pittance which few mechanics would accept, deliberately encourage a diet which they know to be injurious. The same charge is made by a host of other associations, anxious for the support of the medical profession, and apparently ignorant that doctors practise those habits which are assumed to be detrimental to health. Whether vegetarianism, and teetotalism, or a mixed diet and the temperate use of alcoholic stimulants, be right or wrong, are matters on which there will long exist wide difference of opinion. Medical men who approve of the motives of vegetarians, and whose assistance would be invaluable to a propaganda that has hardly yet made any footing in the land, are disgusted by the random and ungenerous charges brought against them. In turn they retaliate, and speak strongly against a movement, which they would not molest were they not compelled to stand on their defence.

On one occasion I went to a public meeting in Birmingham to listen to a paper read by a young man of greater self-conceit than learning, and more presumption than jndgment, on vegetarianism. I intended to mention, knowing that my opinion would have weight with many persons present, to all of whom I was known, that much could be said in support of abstinence from meat, and that vegetarians could live as cheaply and be as robust and healthy as any one else. To my astonishment the lecturer, after making statements so sweeping that no scientific man could support them, as, that no one ought to drink fluids of any description, proceeded to attack the medical profession as the primary cause of disease, immorality, and drunkenness. On vegetarianism he waxed eloquent, and with well-feigned indignation quoted the opinions of a host of *scientific* men, living and dead, in favour of vegetarianism. These opinions did not condemn the use of a mixed diet, but merely admitted that abstinence from flesh was compatible with health. Against what these scientific men had said, he with matchless effrontery placed the practice and opinions of several well-known *physicians and surgeons*, whom he ridiculed as ignorant and presumptuous. It chanced that the scientific men whom he quoted, were, with rare exceptions, medical men. But he did not perceive the absurdity of placing the opinions of Sir Richard Owen, Sir William Lawrence, Sir Everard Home, Linnæus, Thomas Bell, and other doctors against those of the medical profession. This was not the worst ; in his anxiety to show the folly of eating flesh he entered into details that were out of place, and made one or two observations that for indecency I never heard approached. This man might make a few converts among Good Templars, who seem ready to adopt anything fresh, however absurd ; but he could only disgust intelligent persons.

My advice to the advocates of any new movement is to speak with caution, to avoid unnecessary bitterness, and to set an example of Christian charity to those whom they wish to reprove. Zeal without discretion is sure to do harm, and earnestness and high principle show best when adorned with modesty and courtesy.

Indeed, considering its difficulties, it is not the medical profession which should be asked or expected to assist new movements. The medical profession is not, like the church, the army, and the civil service—an

endowed profession in a certain sense. The time which the doctor gives to the furtherance of a good cause is taken from more important pursuits. Officers, fellows of colleges, and clergymen, may without loss support questions in which they take interest ; but the surgeon by so doing neglects his occupation, and perhaps offends his clients. No one approves of a doctor suspected of being capable of trying experiments on his clients, nor of one who has not a large practice. In spite of their eminence I question whether the thousands who applaud and quote Owen, Huxley, and Hooker, would, were those distinguished men still in practice, trouble them with fees. In other professions the advocacy of public questions and great eminence in some other walk of life, unconnected with the daily routine, may not interfere with success in the latter, nay, may actually promote it. Not so with the doctor. In Dr. Rumsey, of Cheltenham, one had a signal and lamentable proof of the impossibility of earning a large income as a medical practitioner, and devoting time to other not strictly professional pursuits. When his long career of usefulness was over, poverty stared him in the face. All that his many admirers asked was a small Government pittance to provide him with the necessaries of life. Such a fate awaits any doctor dependent on his profession—fortunately few are—who ventures to devote himself to the support of a philanthropic movement, eminence in which means loss of professional prestige and income. I warn any young medical man, tempted to advocate vegetarianism, teetotalism, or the science of health, to beware. Let him practise anything he likes ; but leave preaching to others. If he goes out of his way to teach others what he believes to be for their good, he will not, unless he throws himself heart and soul into the unpopular movement, get credit or respect. His fellow-workers will treat him with contempt, and will be more busily engaged refuting what they call his dangerously lax views than in giving him the support he deserves. On those subjects of which he knows most the opinion of any ignorant upstart may be preferred. He will be degraded by contact with uncultured and fanatical persons, and have reason to doubt whether he has done any good. Who would expect an ordinary teetotal society to appreciate and understand the cautious, well-considered and earnest utterances of a high-principled scientific man whose sole object was the discovery and

triumph of truth? Not those who have been rash enough to try to teach men happy in their ignorance and fanaticism.

To return from this digression. Let me show why abstinence from animal food is compatible with health and longevity. Foods are divided into two classes—the organic and the inorganic. The latter are of service in the metamorphosis of organic foods in the human economy. They comprise saline matters and water. According to some vegetarians, therefore, they are not of use, and so for our present purpose may be dismissed. Organic food always contains large quantities of water and minerals; so that, do what the vegetarian lecturer mentioned above would, it would be impossible to avoid, as he said he had, taking fluids and minerals into his system for a month. Organic articles of food may be divided into several classes; but, whether obtained from the animal or the vegetable world, or both, they always comprise carbonaceous and nitrogenous compounds; the former would again be sub-divisible into fatty and saccharine. As the phenomena of nutrition depend principally on the interchange of oxygen with nitrogen and carbon, it is possible to calculate the nutritive values of foods according to the quantity of carbon and nitrogen they contain. But as the value of the carbonaceous constituents of sugar is less than that of fat, it is necessary to calculate carbon in such a way, that, whether contained in fat or sugar, it is reduced to a common measure. Starch is generally used for this purpose. The nutritive values of different foods may be correctly represented by the number of grains of carbon and nitrogen which a dry pound of them contains. The consideration that presents itself is that, if it is known that at least 200 grains of nitrogen and 4,000 of carbon must be contained in the diet daily consumed, would any wholesome food, whatever its source, provided that it contained those quantities of nitrogen and carbon, satisfy the requirements of the body? We can answer that it would. But I question whether the discussion of this question would not have occupied the advocates of vegetarianism on the one side, and those of a mixed diet on the other, till doomsday, had not the attention of the scientific world been drawn to another matter. It was, that all foods contain certain alimentary principles which are identical, whether derived from the animal or vegetable world. On these alimentary

principles the human body depends; and to their being supplied in proper proportions the maintenance of life and health is due.

Let me make my meaning clear. Nothing could be easier than to arrange dietaries, consisting of flesh alone, or vegetables alone, or of both combined in proper proportions, so that all might contain almost exactly 200 grains of nitrogen and 4,000 of carbon. But interminable disputes would arise whether the vehicles in which these quantities of carbon and nitrogen were conveyed into the body were wholesome or not. Nor is it likely that this controversy would soon have terminated. So much could be said on both sides that each would remain of his own opinion still. We know that most foods contain nitrogenous compounds, such as albumen, legumen, fibrine, syntonin, gluten, casein, aud gelatine, as well as carbonaceous compounds, as sugar, starch, and cellulose, and—*this* is the important fact—not only is the chemical composition of some of these constituents nearly the same, whatever their source, but some are precisely the same. The casein of milk is indistinguishable from that in peas and beans; the fibrine in meat from that in wheaten flour and the cauliflower, and the albumen of the cabbage from that of white of egg. The ablest chemist would be unable to tell the source, animal or vegetable, from which pure specimens of these principles had been obtained.

When attempts are made to supply the body with proper quantities of fibrine, albumen, or casein to maintain it in health and vigour, it is immaterial, from a physiological stand point, whether this albumen, fibrine, and casein comes from the animal or from the vegetable world. A death-blow, on one hand, is struck at objections to a vegetarian diet: and, at the same time, on the score of its being less wholesome, vegetarians seem unable to object to a mixed diet. At any rate, the question is in such a condition that great caution is required. The arrangement of wholesome dietaries, however, whether mixed or vegetarian, becomes easy, but the construction of cheap dietaries, quite another matter, must be undertaken on other principles. Vegetables, more particularly green ones, require long and thorough boiling to make them easy of digestion, and probably the addition of large quantities of oil or butter is useful as practised in Southern Europe.

We have seen that there is no ground for denying that a vegetable diet, whether comprising milk and eggs, or not, is wholesome, and can supply the body with everything it needs. That is tantamount to saying that health and strength can be kept up upon it in full vigour just as well as on a mixed diet.

Theories must, however, be brought to the test of experience to make them of real service to man, and experience shows that persons keeping to a vegetarian diet enjoy vigorous health. There is no reason to believe that in any part of the world this does not hold good, except in climates of intense winter cold, where, according to Sir Henry Thompson, no vegetarian diet could furnish the system with enough food to keep up the temperature, and with this exception in Norway, or near the equator, a vegetable diet, modified according to the varying requirements of the system at different temperatures, would sustain life and vigour.

A strong argument in favour of a vegetarian diet should be its cheapness when carefully constructed. But this does not meet with the support of all vegetarians ; some, whom I have talked to, having denied that there was greater economy. They were right if they only substituted expensive fruits and rich puddings for meat and game. But, carefully constructed, a vegetarian diet is economical, and might in any family, rich or poor, effect a considerable saving. It is, however, indispensable that young people to relish a cheap vegetarian diet should be accustomed to it from infancy. Many nutritious and wholesome foods, as oatmeal, maize, and barley flour, from a certain harshness of flavour, require to be eaten from childhood to be acceptable. If the palate is accustomed to them early in life the habit is formed, and there is no difficulty in doing without meat ; indeed, young people brought up as vegetarians care little for animal food, and sometimes actually dislike it.

Some vegetarian bills of fare submitted to me have been luxurious and expensive, and have had little to recommend them on the score of economy, and did not err on the side of overmuch simplicity and frugality.

That a vegetarian diet should be wholesome and palatable, it is necessary that more care should be given to cookery. Those who know something of the waste from imperfect and careless cooking

would not complain that a good deal should be done to remedy a great defect in household economy.

A scientific vegetarian diet, to be of value to hard-working men, requires the introduction of large quantities of pulses, such as peas, beans and lentils, which contain large proportions of nitrogen: potatoes, rice and cabbages could not be the backbone of a healthy and sufficient vegetable regimen.

Vegetarianism could easily be practised in a household in which every one kept to it. There would be hardship, not to say difficulty, for one member to attempt it. At any rate, it would be easier and pleasanter if every member of the family gave it a fair trial: then food could be well prepared, properly cooked, and pleasantly varied. A young man once determined to become a vegetarian. His mother and relatives objecting to follow his example, he had to cook his own food, and his amateur cooking was not of high quality. Under such circumstances vegetarianism would be a hardship.

The simplest way that could be suggested to a person anxious to test the advantages and economy of a vegetarian diet, is to leave off meat and bacon for breakfast, tea, and supper, and at dinner to reverse the usual order of the courses. Begin the meal with tarts, fruit, and puddings, and when every one has had a sufficiency, place on the table the meat, poultry, or fish, which usually comes first. If the pastry and puddings are palatable and well cooked, no one will care for meat, and in a month the latter can be discarded.

There is one kind of vegetable food the deliciousness and fragrance of which are above all question greater than those of other foods—I mean fruit. Everywhere people greedily eat it. Children and savages eat it *ad libitum*. Were fruit abundant there would be no need for an elaborate defence of a vegetarian diet. Every one who could get strawberries, grapes, and plums in large quantities would cease to ask for meat. Unfortunately the cost of fruit is almost prohibitive. When cherries are eightpence a pound, strawberries tenpence and a shilling a quart, and oranges, as they were at Plymouth when I wrote this article, three halfpence a-piece, who could speak of fruit as likely to supplant meat? Were any vegetarian generous enough to supply me with all the fruit, fresh and preserved, which I should require, I could promise not to touch animal food.

Let us ask our vegetarian friends, as an earnest of their gratitude to scientific men for proving that the casein, albumen, and fibrine of vegetables are identical in chemical composition with those of animal food, to turn their attention to importing fruit from abroad, and to cultivating it in larger quantities in this country. Thus they would prepare the way for the rapid spread of their principles, and many people wonld gratefully and cheerfully keep to fruit and give up flesh.

Vegetables certainly take longer to digest than meat, and in all probability few persons giving up meat for vegetables would, at first, find that their digestion was equal to the extra burden laid upon it. After a time vegetarianism undoubtedly becomes easy enough, and does not tax the system. There is no difficulty in framing a dietary, at a cost of sixpence a day, that combines cheapness with palatableness, and at the same time sustains the system in splendid vigour. I speak from personal experience.

Lastly, the sanction which religion is asserted by vegetarians to give to a vegetarian diet will not bear investigation. That abstinence from flesh is sanctioned or actually commanded by our religion is insisted upon by many vegetarians. But that English Christians are to be bound by whatever the Jews did or are supposed to have done is simply ridiculous. If vegetarianism is right, it should be practised without reference to the customs and opinions of the ancient Hebrews. It is unfortunate that the Bible should be arraigned as a witness in favour of vegetarianism, for there is no doubt that the Jews ate flesh, and that they did so, at certain seasons, in obedience to religious rites. If meat is always and necessarily injurious, if it is wrong to take life to obtain food, then it would have been wrong to eat flesh under any pretext. Nothing can change the immutable principles of right and wrong, not even Jewish rites and ceremonies can do that.

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TEA.—At a not remote period the mention of the cultivation of tea was inseparably connected with the name of China, but this plant is being rapidly introduced into many other countries. As was stated in an article on this subject in our March number the British-grown teas of India and Ceylon are rapidly displacing Chinese imports. The tea-plant is now grown in Madagascar, Jamaica, and Natal,—the output for the past year in the last-named colony having exceeded 100,000lbs. We note, too, that a company of Russian merchants has been formed, for the purpose of establishing extensive tea-fields in the vicinity of Odessa.

# THE COLD BATH AND ITS DANGER.

By Dr. T. W. Wake Smart,
*Formerly Physician, Salisbury Infirmary.*

It is an obvious fact that there are remedies and modes of treatment at one time of the greatest possible benefit, and at another productive of dangerous, if not fatal, consequences ; the difference not so much owing to the remedies as to the conditions under which they are administered. This remark applies with much force to the habit of using the cold bath, and I am induced to notice the fact from feeling very strongly on the subject, owing to the occurrence of late of a fatal result in three cases, two of which may be remembered as having happened in the early part of this winter, and all of them attended by very similar circumstances and occurring about the same time. I allude to the deaths of Lord Wolverton and of the Honourable Mr. Maurice Portman, and that of an officer in the Army. The two former excited a feeling almost of alarm and of very general sympathy ; the last-named was unknown perhaps beyond the circle of his family and friends, by whom he was greatly beloved. In all, the facts were the same, as follows :—Each of these gentlemen had risen from his bed to immerse himself immediately in his bath of cold water, as had been probably the daily habit, and hitherto with impunity ; but now what occurred ? Downstairs the breakfast was waiting for their arrival ; they did not come. Alarm was felt, and relatives or friends hurried upstairs ; no answer was given ; the door of the bath-room was forced open, when the appalling sight presented itself of these gentlemen lying on the floor (having evidently recently left the bath) in an unconscious state, and either dying or already dead from fatal syncope. These were men in the prime of life, accustomed to take active exercise, apparently in health, but known, alas ! to have weakness of the heart and circulation, disregarded probably by themselves, though not by their medical advisers, and we see the result.

Three such cases happening nearly at the same date and under such similar circumstances naturally appeal very forcibly to one's mind, and induce the inquiry as to whether the use of the cold bath may not in many cases have a very dangerous tendency. There

must always be a very strong shock to the system by rising from bed with a temperature of about 95°, and plunging immediately into a bath of cold water with a temperature perhaps but little above the freezing point ; the effect of this sudden shock, or check, on the system must be to drive the blood from the skin to the internal organs, to oppress the circulation, to force the venous blood back on the heart, which, if weakened by structural changes, becomes suddenly overpowered and unable to overcome the increased pressure on its mechanism, and so a fatal termination rapidly ensues.

There can be no doubt that a strong and healthy man may take this plunge, not only with impunity, but even feel all the better for it, yet there are many apparently as strong and healthy as he, who, in reality, have an organic weakness of the heart, which to them is a source of the greatest danger. The man in health leaves his bath feeling light and refreshed, with a glow on his skin, and in this state he descends to join the breakfast party below in buoyant health and spirits, and ready for any active exercise or duty he may be called on to engage in. Another man not in health, but only apparently so, leaves his bed-room pale, chilly, and shivering ; has but little appetite for his breakfast, and perhaps may require some kind of stimulant to put his circulation into regular action. In the former case the cold bath has proved an excellent and invigorating stimulus, in the latter its effects are the very reverse ; it proves itself a powerful depressant, and, if persevered in, will assuredly lead to mischief, if not death itself.

At the present day, when athletic exercises of all kinds are so much the fashion, I fear the foundation is often laid, unconsciously, no doubt, of small beginnings of organic mischief, chiefly of the central organ of the circulation, which, as life advances, lead to more pronounced and serious derangements of the health. It is of the utmost importance that young men should have the danger set before them, in order when growing older to seek the advice of a physician for the purpose of ascertaining the fact whether or no the heart is in its normal condition ; if not, greatest caution should be taken in avoiding every possible source of danger, one or which is, I am firmly convinced, the use of the cold bath in the manner I have indicated. Let every man who has reached the age of 35 years,

especially if married, consult some competent authority and be guided by the excellent advice he will be sure to receive.

As an old and retired medical man I have no personal interest to serve in bringing forward this matter, but being deeply impressed by its importance, a sense of responsibility urges me on to raise a warning, though it be but a feeble, voice against the injudicious observance of a salutary Hygienic practice, which may, as I have shewn, become the cause of most dangerous and fatal effects.

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## RABBITS' FLESH AS AN ARTICLE OF FOOD.

By H. C. Bartlett, Ph.D.

Having, some time since, had my attention directed to the circumstance that, up to that date, no analysis of rabbits' flesh had been recorded, it occurred to me to submit that particular animal to examination. The cold weather at the time was suitable for the processes of analysis, and a very tempting basket from Ostend, which lay just opened outside a butter-shop, arrested my attention by being apparently quite fresh, notwithstanding its being Monday morning, a circumstance which pre-supposes a three days' detention in the hamper.

On becoming possessed of three Belgian rabbits for analysis, the removal of the kidneys and their surrounding fat was first remarked. This was done, no doubt, carefully "on the other side of the water," under the impression that if they were permitted to remain they would tend to promote decomposition, as might possibly be the case in hot weather. The folly of this proceeding in the coldest part of the month of March is only exceeded by the ignorance which it betrays. Presumably as a decoration the fur is left on the shank bones of the hind legs, and as there is hardly any flesh beneath the fur it is better to chop them off.

Very careful dissection is required to obtain all the muscular flesh from the bones and cartilages, these being considered as producing edible matter only so far as their gelatin may conduce to thicken gravy. Passing all the flesh, liver, heart, and whatever adipose tissue there may be, through one of Nye's mincing machines several

times, the muscular substances were effectually pulped. In this state it became apparent why the flesh of the rabbit had been previously denied the honours of chemical analysis. It is, in fact, extremely difficult of filtration, requiring in all the stages of separation of the albumin so long a time as to necessitate the employment of surrounding masses of ice to prevent decomposition. Working in a temperature of less than 40° Fahrenheit for many consecutive hours is not agreeable, even to an analyst, but this seems to be the only means of eliminating the whole of the albumin from rabbits' flesh. Two additional noticeable instances of increased difficulty were found in the more than ordinary number of macerations in ether and hot alcohol required to obtain the fat and extractives, and the equally unusual length of time absorbed in boiling out the gelatin ; no less than 96 hours being consumed in this necessary but uninteresting occupation.

The other processes call for no particular remark, but a full week elapsed in producing the following results, which are placed in comparison with the analysis of a loin of veal (without kidney or its fat), being the butcher's meat presenting the nearest resemblance to the flesh of rabbits.

| | Percentage of weight of rabbits. Grains. | Percentage of weight of loin of veal. Grains. |
|---|---|---|
| Water - - - - - - | 73.17 | 68.89 |
| Flesh formers { Fibrin or Syntonin - - | 13.90 | 12.35 |
| Flesh formers { Albumin - - - - | 3.38 | 2.61 |
| Gelatin - - - - - - | 3.63 | 3.31 |
| Fat - - - - - - - | 3.15 | 11.13 |
| Alcoholic extract with salts - - | 1.32 | 1.08 |
| Watery extract with salts - - - | 1.23 | 1.01 |
| Calcium and other phosphates - - | .22 | .12 |
| | 100.00 | 100.00 |

The extractive matters obtained were identical in every respect with what is known as "Liebig's Extract of Meat," and the flesh, generally, may be considered as fully equal, if not superior, to young veal. The only real drawback to the suggestion for recommending an increase in the consumption of rabbits as food, consists in the larger amount of waste, by reason of there being so much bone, propor-

tionately, to throw away. This objection would disappear if the rabbits were more systematically fattened, because the largeness of the proportion of bone would be reduced in a ratio to the increase of fat; but that, after all, is a mere matter of market price, which, if kept low enough, would compensate for this item. With regard to the paucity of fat the same argument applies, for it must be clear that so long as bacon, or other fat, can be purchased at about the same price as rabbits, any deficiency in this respect can be made up without loss. The necessity is to show a sufficiency of albumin and syntonin, and that the latter shall be of such a nature as to be free from undue hardness of solution, chemical or mechanical; this condition, there is every reason to believe from the foregoing analysis, the flesh of rabbits possesses.

## SCHOOL HYGIENE.

"*La Santé est le facteur qui fait valoir les zéros de l'Education.*"

When Montaigne wrote the essays from which we quote, and when John Locke,—most philosophical of physicians,—followed in his footsteps, one hundred years afterwards, education was in a primitive condition. Nor has so much of value been added to it since, as many would suppose. The principles enunciated by the former author, and made popular to English readers by the latter, have found a prominent position in the text-books of all who have written upon the subject since then, and though Hufeland, Pestalozzi, Fröbel, Dupanloup, Lancaster, and others, down to the authorities of our own time, all express their own special views, yet they all reverently and instinctively bow before their great teacher.

Montaigne laid it down as an axiom that "Those who separate the education of the mind from that of the body, do a great wrong."

Dupanloup says, "Education is a skilful gardener, who places the plant confided to him in a good soil, sprinkles it with water, surrounds it with favourable conditions, and shelters it with care."

Fonsangrives tells us of a "blind tenderness," which makes our children invalids; and a "murderous pride," which forces them to ride a steeplechase to destruction, by making them Latin scholars at twelve years of age, and accountants at fourteen.

Dr. Rumsey says, "The future man exists in embryo in the school-room," and that he has known boys "of rare parts sicken and die" under the baneful excitement of over-teaching, whilst others have become "hopeless lunatics."

Locke did not exactly recommend "tunding" as formerly practised so freely at Winchester, but he differed somewhat from Montaigne, in that respect; and, inasmuch as even iron becomes hard by hammering, and soft by heat, so he infers that human nature may readily be made to yield to the genial warmth of kindness.

In truth, the mind of a child is like wax, and will as certainly and quickly take an impression. It is not, however, our purpose to write an essay on education in the abstract, and therefore, we will repeat an instructive observation made by Locke, "That if we had been accustomed to go bareheaded from our birth, and to wrap our hands in furs, it would be quite as dangerous to wet the hands, as many people now consider it to be to wet the feet."

Hufeland was a physician, and the first authority who brought the subject of education into the legitimate domain of Physic. In his day the instructor of youth was called "the high priest of Nature," which is only a paraphrase of Hippocrates, who says, "Medicus Naturœ minister et interpres,"—the physician is the minister and interpreter of Nature.

In this utilitarian age of ours, these grand principles are cast aside, and, as regards the great mass of the people, they have been educated, or not, just as may chance to be. It is a matter of common remark that the education of our pauper children is sometimes better than that of some of the guardians; and that, in some of our schools and seminaries with high-sounding names, in fashionable localities, the first object is to make money by putting *extra* charges on any and every possible occasion. Whilst we are writing, we call to mind the case of a lad of twelve years of age whose education costs his parents £80 a year; and, yet, the "high priest of Nature," under whose tutelage he is placed, charges sixpence for a matutional egg at breakfast, or for a small slice of cold meat, which the boy, sitting next to this lad, feasts upon also,—with his eyes.

An authority on the subject sums up the too frequent state of rdinary schools, thus:—"Narrow rooms, low, damp, and deprived

of sun, sometimes hot and close, saturated with bad odours, or subject to draughts. The seats are too high or too low, the positions dangerous for the lungs, the stomach, the circulation, the spinal column, or the brain." Then, too, the "dazzling reflections of light" (and some of our new and splendid school-rooms admit the light on three sides,) injure the eyesight in various ways.

These are the conditions in which many of our children are brought up at schools. The result is a far greater mortality amongst children than there should be.

Hufeland insists that "we must not form the mind at the expense of the body," and Fonsangrives tells us that, in his early life, he used to see "fine young men, of twenty, with quiet manner, fresh colour, and honest faces, who had sound health, and did their work steadily and well." "Now-a-days," he continues, "they are replaced by children,—men of seventeen or eighteen, thin, nervous, pale, and perhaps married, led on by ambition to their destined career. Some drop by the way, a few (thanks to innate vigour) resist these trials, whilst the majority of them arrive at maturity, attenuated, their bodies destroyed by anticipated efforts, and their intellects impaired and incapable through immature mental exertion."

When this degeneration occurs, it is a sad reality, and it is a foregone conclusion that, by weakening the physical condition, the moral force of the character is proportionately destroyed.

The fine and bright flame of intelligence burns only by consuming the body. Though it is non-material in its nature, yet it requires a material aliment, and wears out the organic strength of the body which supplies it. And whilst muscular effort works out its own repairs by giving a better appetite for food, and increasing digestion, on the other hand mental exertion in undue proportion intensifies the evil, depresses the vital functions, and so prevents necessary recuperation.

Professor Velpeau, of Paris, under whom the writer of this article had the pleasure of being a pupil, enunciated this fact in a few pithy words, which have since passed into an aphorism :—"Once destroy the balance between mental and physical condition ; what you gain in intellect, you pay in tubercles," (*i.e.* consumption.)

Even the teacher has been aptly compared to a candle which burns

itself out in enlightening others, and he (or she) is sometimes a martyr in a better cause than the so-called hero, who dies upon a rampart. The time has not yet come when this is accepted as a truism, but come, it must; and recent sad cases of suicide by teachers, with numerous, less widely known, instances of physical break-down amongst them, serve to illustrate the force of our argument.

The question of the food of children is a matter of primary consideration, in connection with education. Within our knowledge a boiled bullock's head and a few potatoes have been given at one of our suburban schools, (the promise of "unlimited diet" is flaunted on its prospectus) as a dinner for 20 boys, and a dozen small fresh herrings have been called a dinner for the same number of young ladies, whose parents paid very high terms for them. But, to regard such diet as a meal, or to call a couple of thin slices of bread-and-butter, and hot water with barely enough tea and sugar to satisfy one's conscience, or copiously diluted milk, of the character described in police reports as "country," by the name of either breakfast or tea, is worse than a farce, and it is an insult to common sense to be asked to suppose it possible that the human frame can be built up of such scanty materials.

The activity of all the processes of life, concomitant with youth,—circulation, absorption, and respiration, go on at a rapid rate, and the food is transferred into the living body and appropriated, not only in supporting it, but in adding to its size and weight.

How then, can we expect a satisfactory result from the ordinary diet of such schools as we have referred to? Whatever the principals of many educational establishments may say, or prospectuses may promise, the fact remains,—and it is notorious,—that when children return home for the holidays, they have a great craving for sugar, and butter, and cake, all rich in elements of heat, and fat-producers, wherewith to balance the equation in their organic structure. How is it that hysterical girls often get well when they come home from school, though the doctors could do nothing with them there? Because after their return they have a diet suited to their physical requirements, as well as unlimited in quantity. We may "tone down" the subject as best we may, to suit our objection to disagreeable truths, but the hard fact will still remain that, in many of our

boarding-schools the system is not so very much in advance of "baby-farming."

In the District Schools, too, what do we observe? A vast aggregate of human atoms, who are counted by hundreds, possibly a thousand, in one building,—and with what result? Speaking from personal observations, we assert that children in such circumstances lose their individuality, and insensibly become mere numerals, like the inmates of a penitentiary. This happens without wish or intention; and as there is a moral and social obliquity, so there is also a divergence in the physical. In evidence, witness the outbreaks of ringworm and other skin affections, or of ophthalmia, which are occasionally chronicled in the daily press as occurring in various large District Schools.

The reader will, perhaps, be surprised to learn that the average number of cases of deformity in schools, in various degrees of development, taken generally and promiscuously, has been estimated as high as 40 per cent. amongst girls, and 20 per cent. amongst boys, and that the great majority of cases of spinal deformity are referred as to their origin, to the period of scholastic life. Eminent ophthalmic surgeons have remarked that defect of vision, a common result of mis-management of schools, runs *pari passu* with spinal deformity; and one of these specialists, Dr. Richard Liebreich, has designed a chair and a desk which are well adapted to obviate these great defects in school life, and are worthy of the attention of School Board and other sanitary authorities.

In the great question of education, and of various collateral matters, the Americans are far before us, and before most, if not all, European nations. It is not a little singular that the American desks and seats with backs, for the pupils, are almost identical with those adopted by Joseph Lancaster, when he, tired of the alternative opposition and oppressive patronage which he experienced in this country, emigrated to the United States.

Joseph Lancaster began to keep school in London, in the year 1798, when he was eighteen years old, in a room in his father's house. He purchased some old boards, and fitted up the school-room with his own hands, and thus commenced an institution which, to quote his own words, "drew forth the opposition of the bigot, and the

persecution of men eager in the pursuit of popularity, but too idle to earn it."

He had 100 pupils, but being without money to engage teachers, he set one pupil to teach another, and thus originated his system, which has been copied and modified a hundred ways, although very rarely acknowledged. Subsequently, he had 300 scholars, and eventually as many as 800 boys and 200 girls, and to those who were too poor to pay, he gave education freely.

He discovered that "he could educate three or four children in elementary knowledge for a guinea," a fact which we beg to submit to School Board authorities, referring them to Joseph Lancaster's own work on the subject as our authority. He frequently took his pupils out for a walk, and he mentions that, on one occasion he took "500 pupils out on an excursion in perfect order and peace." Lancaster carried on his school from 1798 to 1804, and then, leaving it to the management of others, he travelled throughout England ; but, as he says in his Memoirs, the Committee got into debt, treated him as if he were a "hired servant," and so he finally turned his back on his country. He adopted America as his future home, and was, as far as we can learn, the founder of the admirable system of public instruction now practised in the United States.

Education is, so to speak, the nursing mother who teaches the child its first step out of "a darkness that can be felt ;" and also the willing handmaid who converts the child into the man.

When a child takes a dislike to his studies, his conduct and his morals are so closely connected that they suffer alike, and call for serious and immediate consideration. This deterioration may be frequently traced to the hygienic condition of the school.

Three hundred cubic feet of space is the least amount that ought to be allowed to each individual. Children respire oftener than adults, though their lung capacity is less ; so that, with regard to this point, they ought to be treated as adults. For instance, a room, 10 feet high, 20 feet long, and 15 feet wide, is barely enough for eight pupils and two teachers ; if the room were 12 feet high, and of the same dimensions, it might be used to contain two more persons. In fact, all rooms used for education should be 12 feet high, at least.

Oertel found by experiment that in well-ventilated private houses

10,000 parts of air contain 8 to 10 parts of carbonic acid. But elsewhere the proportion was as follows :—

Hospitals, 14 to 30 parts, in 10,000 ;
Prisons, 13 to 33 ;
Barracks, 27 to 53 ;
Schools, 16 to 94 ;

And, in the last-named instance, with what results? Is it surprising that on entering a school-room where there are a number of pupils we find that the air is damp and loaded with an unwholesome smell? just the sort of atmosphere, in fact, which Dr. Guillaume has described as "*Miasme scholaire.*"

Besides this deterioration, we have dust floating about in large quantities, as we can verify when a sunbeam darts across the room, and the dust of the school-room is as hurtful as that of many manufactories.

In an interesting paper on Headaches in Children, read at the International Medical Congress, held at Washington last year, Dr. W. H. Day specially pointed out that these affections are very common amongst school children, and quoted in support of this view the statement of Professor Bystroff, who examined more than 7,000 children in schools at St. Petersburgh, and found headache in 11.6 per cent. of the whole number. The chief causes of headaches in school children are, according to these two authors, deficient ventilation of the school-rooms, overtaxing the mental energies of the children (more particularly those of delicate build, or who are underfed), and defective vision.

Fröbel, who was born in 1782, was a pupil of Pestalozzi, and a contemporary with Lancaster. He left us the legacy of the Kindergarten.

Some time ago we visited in Paris a Kindergarten school containing sixty children, all girls, in two classes, from three to eight years old, and it was astonishing to witness how thoroughly happy the little ones appeared in their work. We saw them solve many of the elements of geometry, and prove by describing them that they were acquainted with the nature of curves, angles, planes, and spheres. All this they had learned without the aid of books, but

merely in the form of amusing object-lessons. Here the little ones were not kept at one subject more than fifteen minutes, and they had ten minutes relaxation, *i.e.*, play, every hour—a very important hygienic consideration.

Let us hope that matters of such great moment as the diet and physical development of children, and the ventilation and other sanitary arrangements of schools, may not always be considered of less importance than the language of extinct nations, or the acquirement of so-called accomplishments, which are seldom brought into requisition in after-life.

A.

# BRITISH HEALTH RESORTS.

## No. 4.—THE UNDERCLIFF, ISLE OF WIGHT.

By W. H. Hall, M.B.

For some years back there has been a general tendency for the British Invalid Public, if I may so say, to wander to foreign climes in search of health-resorts suited to their different ailments, but there now seems to be a reaction setting in, due, perhaps, to the very variable weather experienced abroad for the last few winters, and also to some extent to the earthquakes and other internal disturbances, which have so frightened invalids that they are now beginning to think more seriously and more honestly of the good things they have nearer home. It might be said that this is the view taken by proprietors of spas and health-resorts; what is it from the invalid side of the question? Well, it must be admitted that hitherto the accommodation, means, and appliances in use for treatment, at places on the continent have been better than at similar ones in this country, but that cannot remain an excuse, for all these are now carried on with as good style and skill here as on the continent. I might mention a few of the ailments for which invalids go abroad, and also the names of a few resorts usually recommended for their

treatment, and thus show some proof of the above remarks :—

| | CONTINENTAL. | BRITISH. |
|---|---|---|
| Anæmia, (due to its innumerable causes.) | *Thermal.* Gastein, 95°-114°, Johannisbad, 86°, Teplitz, 95°-112°. *Salt Water.* Homburg, Kissingen, Kreutznack, Baden-Baden. *Chalybeate.* Schwalbach, Spa, Flinsberg, St. Moritz, | *Thermal*, Buxton, 82°, Bath, 100°-120°. *Salt Water*, Droitwich, Harrogate, Leamington, Cheltenham, Woodhall. *Chalybeate.* Isle of Wight Spa (Blackgang,) Tunbridge Wells, Harrogate. |
| Gout | Carlsbad, Homburg, Aix-la-Chapelle, Eaux Bonnes, Royat, Enms, Baden-Baden. | Harrogate, Leamington, Bath, Moffat and Strathpeffer (Scotland), Llandrindod and Builth, (Wales) Lisdinvarna (Ireland.) |
| Chronic Rheumatism. | Aix-la-Chapelle, Aix-les-Bains, Wiesbaden Teplitz. | Bath, Buxton, Leamington, Strathpeffer. |
| Chronic Bronchitis, Emphysema, Bronchial Asthma, Chronic Pharyngeal and Laryngeal Catarrh. | Lisbon, Madeira, Malaga, Nice, Palermo, San Remo. | Bournemouth, Hastings, Torquay, Ventnor and the Undercliff (Isle of Wight.) |
| Early active and the quiescent forms of the later stages of Phthisis, Chronic Pleurisy, Convalescence from Pneumonia. | Cannes, Upper Engadine, Pau, Mentone, the Oberland, San Remo, Spezia. | Bournemouth, Brighton, Hastings, Torquay, the Undercliff (Isle of Wight.) |
| Chronic Dyspepsia, Chronic Hepatic disease, Chronic Endometritis, Pelvic Cellulitis, Chronic Dysentery. | Hyères, Pontresina, the Pyrenees, St. Moritz. | Hastings, Ventnor, and the Undercliff (Isle of Wight.) |
| Convalescence from acute Nephritis and all forms of Chronic Bright's disease but especially Catarrhal Nephritis for which warm dry climates are indicated. | The Riviera. | Brighton, Folkestone, Ventnor and the Undercliff (Isle of Wight.) |

Now, all of these have their respective merits, but I have only to do here with the Undercliff (Isle of Wight.)

Although the Undercliff is such a well-known place, most people who have not visited it seem to have a very vague idea as to what is really meant by this name. It is that portion of the south coast of the Isle of Wight extending from Luccombe (East) to the little village of Blackgang (South-West), seven miles in length, varying from a quarter to nearly one mile in breadth, and includes Dunnose, Bonchurch, Ventnor, St. Lawrence, Niton, St. Catherine's Point, and Blackgang, with the famous Blackgang Chine. It consists of an irregular table-land, or rather, a succession of terraces, backed up by a chalk wall of unequal height, and raised 50, 60, and even 100 feet above the sea level. Certain internal agencies, land springs and hidden waters, at work since the dawn of life and light upon the world, have resulted in the separation of this strip of land from the hills of which it was formerly a part, and the removal of it bodily to a considerable way below them, between them, in fact, and the sea. To understand the cause of this subsidence, it is necessary to be acquainted with the geological nature of the rocks, and the influences to which they have been subjected. The strata, reckoning from the lower are, first, red ferruginous sand ; then blue marl ; next green sandstone ; and at the top chalk and chalk marl. The stratum of blue marl is soft and easily acted upon by land springs, when it becomes mud, and oozes out ; and the sandstone and chalk being deprived of their support must of necessity sink down. The subsidence, if thus brought about, might be gradual and scarcely perceptible, except in its ultimate results ; but the sea was at the same time beating with violence against the lower strata, and washing out the sand and marl, which were already loosened by the springs. This double process would go on till the superincumbent mass became unable to sustain itself by mere adhesion to the parent rock, when it must necessarily break away and fall forward. That this is the way in which the Undercliff was produced, is evident from an examination of the phenomena it presents, and what may be observed still going on, though on a lesser scale. The great change in the level must have occurred at a very distant period ; churches and houses of ancient date, which stand in different parts of the Undercliff, show that no considerable alteration can have taken place for centuries.

The Rev. James White speaks of the Undercliff as :—"Consisting of a platform varying from half a mile to a quarter in width, bounded on the south by the undulating bays and promontories of the Channel, and on the north by a perpendicular wall of grey rocks, which form the buttress to a range of downs of almost mountainous elevation. It unites two of the principal constituents of a noble landscape. But when, with its guardian hills and ever-varying ocean, we remember the richness of its vegetation, the clearness of the air, and the wild seclusion of its innumerable dells, the glowing expressions of enthusiastic tourists would seem not much, if at all, beyond the truth. In addition to its beauty, the district has acquired within a few years another and a better claim to admiration. The peculiarity of its position, guarded from the east and north by a barrier of rock, the mildness of its air, and the extraordinary dryness of its soil, have made a chosen spot for the invalid, and a refuge from the attacks of the English destroyer, or, at least, a soother of the English disease—consumption." Lord Jeffrey, of the *Edinburgh Review*, writing of the Isle of Wight, says : "The chief beauty of the island lies on the south, where it opens to the wide ocean, and meets a warmer sun than shines upon any other spot of our kingdom. On this side it is for the most part bounded by lofty chalk cliffs, which rise, in the most dazzling whiteness, out of the blue sea into the blue sky, and make a composition something like Wedgwood's enamel. The cliffs are in some places enormously high—from 600 to 700 feet. The beautiful places are either where they sink deep into bays and valleys, opening like a theatre to the sun and the sea, or where there has been a terrace or low land at their feet, which stretches under the shelter of that enormous wall, like a rich garden plot, all roughened over with masses of rock, fallen in distant ages, and over-shadowed with thickets of myrtles, and roses, and geraniums, which all grow wild here in great luxuriance and profusion. These spots are occupied, in various parts by beautiful ornamented cottages, designed and executed, for the most part, in the most correct taste. Indeed it could not be easy to make anything ugly in a climate so delicious, where all sorts of flowers, and shrubs, and foliage multiply and maintain themselves with such vigour and rapidity. The myrtles fill all the hedges, and

grapes grow in festoons from tree to tree, without the assistance of a wall."

The mean annual temperature is 51.°72′; and as a result of eight years' calculations, it has been shown that the warmer and more genial winds blow here for the greater portion of the year. Thus :— S.W., 96 days ; E., 60 days ; N.E., 54 ; W., 52 ; N.W., 30 ; S., 26: N., 24 ; and S.E., 18.

After quoting such high authorities it is needless for me to dwell on the undoubted beauties of the Undercliff, or its climate, especially when I mention that the heliotrope, myrtle, fuchsia, stocks, and roses bloom in the open air throughout the winter, but let me point out to what class of patients it is of value. Although it is an undisputed fact that patients suffering from phthisis, in all stages of the disease, benefit by a visit to the Undercliff, still it must not be supposed that they are the only ones who should go there, on account of the extreme dryness, but at the same time stimulating character of the air. Those suffering from chronic bronchitis, chronic pharyngeal and laryngeal catarrh, convalescence from pneumonia, gout, chronic pleurisy, and the different forms of Bright's disease, will derive benefit, while in some parts, due to the mountainous character of the air, patients suffering from emphyesma, and asthma will find a welcome change. In the summer months, too, those suffering from chronic dyspepsia, hepatic, and all forms of uterine, disease, anæmia, debility and failure of nerve power will find the Undercliff well suited to their ailments. Now, although the whole extent of the Undercliff has been found to benefit these patients, still I think the western limit of it excels the remainder in all advantages, and here is found an establishment replete with every home comfort.

The Isle of Wight Spa at Blackgang has an unequalled position. Situate on the west side of St. Catherine's Point it secures the purest air, which has passed directly over 3,000 miles of sea. Placed, as it has been aptly stated, in a nest under the cliffs, it is singularly sheltered from the force of the winds. Frequently in the road above a gale is blowing, whilst but little wind is found in grounds of "The Spa." The delicate individual, not strong enough to bear the blast, may therefore roam about the grounds on the most

windy day, whilst the man of stronger constitution, who requires a bracing atmosphere, may within a quarter of an hour of his leaving "The Spa" find himself on the downs, 800 feet above the level of the sea, inhaling the invigorating mountain air. The Spa lies, as it were, in the basin of an amphitheatre with the cliffs towering 800 feet in a semi-circle round it, entirely sheltering it from all but the south and south-west winds. During the summer the breeze from the sea produces a uniform temperature, whilst the shady walks and nooks in the grounds (of 40 acres) afford relief from the glare of the sun. In like manner, in winter, the air from the Southern Atlantic, striking directly upon the place, mellows the cheerless nature of the winter storm: thus the range of temperature in summer and winter is very small indeed, and affords advantages in this respect not found in any other part of the kingdom. Adjoining the grounds of "The Spa" exists a most valuable mineral spring, formerly used with great benefit, but now sadly neglected; nevertheless, of the utmost value to persons suffering from anæmia, chlorosis, over-work, dyspepsia, and ague. Indeed it might be said that the Undercliff is the home for retired Indian officers, and Englishmen who have spent a number of years in India, and have been exposed to malaria.

Sir Charles Scudamore, M.D., in his Chemical and Medical Report on the Properties of the Mineral Waters of England, after quoting from the report of Dr. Lempriere (formerly Physician to the Army Depôt Hospital in the Isle of Wight) concerning the effect of the water in upwards of 200 cases at that establishment, says:—"The mineral water never failed to produce the most speedy and most beneficial effects, such as he had not before observed from any other remedy, evinced by a rapid improvement in the patient's countenance, spirits, and appetite, and ultimately by a permanent re-establishment of his health;" and concludes by observing, "That the virtues of the aluminous chalybeate spring will be materially promoted by the salutary influence of the air."

Sir James Clarke, M.D., in his well-known work on the Influence of Climate, expresses himself as follows:—The powerful aluminous chalybeate water is the strongest mineral water of the kind with which we are acquainted. From the resemblance of this spring to a

celebrated mineral water in Sweden, Berzelius was induced to examine it. The results of his experiments confirmed the accuracy of Dr. Marcet's analysis. It has been found useful in the cure of agues, in some cases of dyspepsia, and in general relaxation and debility connected with uterine weakness, etc."

Dr. G. R. Dartnell, formerly Deputy Inspector-General of Fort Pitt Hospital, Chatham, reported :—"The aluminous chalybeate water has been found extremely beneficial, especially in the after treatment of persons convalescing from fever of a low type."

Dr. Richard Dowse, formerly Deputy Inspector-General of the Military General Hospital, Stoke, Devonport, stated :—"Its beneficial influence as a tonic was satisfactorily exemplified in restoring tone to the digestive functions, and hastening the restoration to health."

The following analysis of the chalybeate spring made by the late Dr. Marcet, was published in the "Transactions of the Geological Society of London" :—

| | Grains. |
|---|---|
| Of Carbonic Acid Gas, three-tenths of a cubic inch; Sulphate of Iron, in the state of Crystallized Green Sulphate - - - | 41.4 |
| Sulphate of Alumina, a quantity to which, if brought to the state of Crystallized Alum would amount to - - - - - - | 31.6 |
| Sulphate of Lime, dried at 160° - - - - | 10.1 |
| Sulphate of Magnesia (Epsom Salts) Crystallized - | 3.6 |
| Sulphate of Soda (Glauber's Salt) Crystallized - | 16.0 |
| Muriate of Soda (Common Salt) Crystallized - | 4.0 |
| Silica - - - - - - - - - | 0.7 |
| To the pint of water - - | 107.4 |

These results were confirmed generally by O. Hehner, F.I.C., F.C.S., in a paper read before the Society of Analysts in 1882.

The late Mr. J. L. Waterworth, Surgeon, who made these waters his especial study, thus summed up the results of his labours, after twenty-five years' experience of their use :—The diseases in which this most powerful tonic has proved so eminently beneficial are all those termed asthenic, arising from a relaxed fibre and languid circulation, such as indigestion, weakness of stomach, loss of appetite

flatulency, tremblings, with all the variety of nervous and hypochondrical disorders, obstinate diarrhœa, strumous complaints, dropsy, particularly anasarca, diabetes, and agues, even when the bark and other supposed specifics have failed in effecting a cure. It has been found extremely efficacious in counteracting the debilitating effects of a long residence in hot climates.

## TINNED MEATS.

NOWHERE are extravagance, carelessness, and ignorance more marked and less excusable than in selecting and cooking food. Every year millions of pounds sterling are squandered on delicacies and luxuries, which are, in most cases injurious, and in all extravagant to a degree. Expostulations are thrown away, and English housekeepers are indifferent to the advice lavished on them. It may be retorted that experience testifies to the wisdom of our countrymen in the arrangement of their dietary, and that their prosperity and wealth are due to judicious selection of food. This defence may have something in it, but surely is no justification of the improvidence which thoughtful men deplore, and certainly does not prove that greater knowledge would not save vast sums to our countrymen, and immense stores of food. Most unfortunately the population of the United Kingdom is increasing with a rapidity calculated to alarm even the reckless. The home agricultural produce, although yearly more abundant, does not keep pace with millions of hungry mouths which every fresh generation calls into existence, and the nation is consequently obliged to look to foreign countries for increasingly large supplies of food. Hardly half the corn consumed in this country is of home growth, and of some other foods the foreign supplies are still larger.

Some kinds of food,—wheat, rice, and dried fruits, for instance, are easily imported from the ends of the earth, and do not undergo deterioration on the way. But meat, which is the chief necessary of life to the Englishman, is not abundant at home, and cannot, like less perishable foods, be conveyed a great distance. How to overcome an apparently insuperable difficulty was a troublesome problem. On one hand, the home market was anxious to purchase immense quantities

of meat, on the other, some foreign markets were actually surfeited with fine but practically valueless animals that could not be conveyed to places where they would command high prices. In the countries on the banks of the Plate there were probably fifty millions of cattle and sheep, of value only for their horns, fleeces, and skins. In Australia there was the same state of things. Millions of sheep wandered about its thinly peopled and almost inaccessible settlements, and were bred principally for their fat. At present fine, fat, well-grown oxen can be purchased in Australia at £5 10s. or £6 per head, while the same animals would in this country be worth £20 to £30 a-piece. There was a large margin to cover freight, and the expense of organizing some system for exporting to England an article superabundant in the colonies, but scarce at home.

It is still difficult to transport living animals to this country in large numbers, but plans have been tried, and with marked success, for preserving meat in the colonies. In this form it is sent to the home market, where it finds a large and ready sale. One hundred, or more meat preserving companies are at work in different parts of the globe, and the quantity imported into this country is probably worth some millions a year. The processes used are, at least, seven; but some are more successful than the others.

The antiseptic properties of salt early led to its use in these attempts. Mixed with saltpetre, the success was sufficient to induce some of the earlier importers to fancy that the difficulty was removed, and to hope that it would become easy to send immense quantities of cheap and wholesome meat to England. The salting processes are two. In one, strips of flesh are freed from fat, and then salted and dried. In the other, the meat is brought over in casks filled with brine. The former is called Dried, and the latter Moist, Charqui. Both forms of Charqui are valuable from the richness in nitrogenous matters, but are not palatable, and it is not possible to eat large quantities without injury to health. The following ingenious modification of salting has been proposed :—A bullock is slaughtered in the ordinary fashion, and brine is forced into its arteries. This fluid carries the contents of the blood vessels before it, and fills the latter. Even this plan is not invariably successful, and some joints, preserved in this fashion, are putrid on their arrival in England. After

all, though meat can be preserved by salt, the meat *is salt*, and is not so wholesome and agreeable as fresh meat. As a constant food salt-meat cannot hold its own in the home market, in spite of cheapness and nutritious properties.

Another plan is to expose fresh meat to the rays of a tropical sun. It is thus thoroughly dried. But this process is not invariably successful in preventing decomposition, and, when properly preserved the dried masses of flesh are hard and tasteless. An attempt has been made to introduce lean meat, carefully dried, and roughly ground, into the dietary of invalids; but this preparation is expensive, and is not sufficiently palatable to make it a general favourite.

A third plan is to freeze meat; and in some respects much can be said in its favour. Every one knows that a low temperature retards, and may altogether prevent decomposition. The difficulty is to place fresh meat in chambers kept at the freezing point, and then to convey it to England. This difficulty, although not insuperable, has sorely taxed the resources and ingenuity of meat preservers. Of late, however, as the result of untiring exertions and ingenuity, meat chambers have been constructed in which meat is perfectly preserved, while the temperature, though near the freezing point, does not actually fall to 32° Fahr., and the objections to frozen meat are obviated, while the meat keeps fresh. Meat that has been actually frozen is less nutritious and less palatable than when fresh. It would be necessary to tempt purchasers by offering the meat at reduced prices, unless use should enable one to disregard the disagreeable flavour of thawed meat.

Another was is to surround joints with fat, oil, or gelatine, and so exclude the air. The canisters are then brought to this country. The difficulties in the way of preservers who adopt this plan are considerable. Some tins go bad, much of the fat used is either spoilt or diminished in value, and the oil sometimes becomes rancid and gives the meat a disagreeable flavour. In consequence of these mishaps the process is not adapted for general use. There do not appear to be insuperable obstacles in the way of preparing fat, by the addition of, or the removal of, chemical constituents, so that meat could be preserved in it, and surrounded by it, without having its flavour impaired.

A fifth plan is subjecting meat to great pressure. By this means the juices are forced out, and the meat and its juices are preserved and imported in separate tins. The objection is that meat, deprived of its juices, is nearly flavourless, and, though nutritious, is most decidedly not palatable. The agreeable flavour of meat resides in its juices. and the solid residuum has the same taste, whatever kind of animal is eaten. Any one can find out that, deprived of their juices, there is no difference between beef, mutton, and pork. This being so, the sale of solid residuum could never be large.

Another method is preserving meat by surrounding it with gases with good antiseptic properties. Among these gases sulphurous and nitrous acids rank high. Science will some day succeed in making this plan successful and practicable. At present the objections and difficulties are serious. There is difficulty in removing the atmospheric air in and around the meat, the latter for the purpose being placed in tins, and there is the objection, a reasonable one too, that meat preserved by immersion in an antiseptic gas acquires an unpleasant flavour. A curious modification of this plan has been patented. It consists in filling tins with a preserving gas, which expels the water introduced to occupy the spaces in and around the meat. As soon as the antiseptic fluid is admitted the tins are hermetically sealed, and the introduction of atmospheric air stopped. The success of this plan has not been what could be desired. A certain percentage of tins are found. on the arrival in this country, to contain putrid meat, the remainder have the agreeableness and market value of their contents so much diminished that the meat commands a lower price than fresh meat; and even then some persons think it dear.

No plan described has been successful, except the preservation of meat in air-tight chambers having a temperature just above freezing point. Serious objection can be urged against the constant use of meat preserved by any of these methods, not—except in the case of salt meat—on the score of health, but because it is not agreeable, though use lessens this objection. Unfortunately, in consequence of prejudices and drawbacks, the supply of Australian and American imported tinned meats to this country has till recently chiefly depended on the seventh and remaining plan, the one eminently

successful. In this the preserving agent is heat. The method adopted is the following, and is called Appert's process. It is used by scores of the best houses in the trade. With the exception of a small quantity of common salt, and perhaps a little rich stock, nothing is added to the meat, and no chemicals are used. The meat used by the leading firms is obtained from the fine cattle for which Australia and America are famous. After being freed from bone the meat is scalded for a quarter of an hour, to expel the air from its interstices. It is then cut into strips, only the finest portions being used. Tins of different sizes are filled with these pieces, seven pounds being placed in the six-pound canisters, four and a half in the four-pound, and two and a quarter in the two-pound. The lid is next soldered on, a small aperture being left, and the tins are placed in large, flat, open, square baths, containing a mixture of chloride of calcium and water. This fluid rises sufficiently high to leave one-third of the canisters exposed. Chloride of calcium requires a higher temperature to raise it to boiling point than water; hence its use. Were the tins placed in pure boiling water their contents could not be properly preserved. The temperature of the mixture is raised by steam pipes passing through it to 260° Fahr., and the water in the tins is expelled in the form of vapour through the pinhole. As soon as the water and air are driven off, and the meat sufficiently cooked, a drop of solder is placed on the vent-hole, and the tins are hermetically sealed. They remain exposed to a high temperature to boil off. On being removed from the bath they are placed in cold water. This causes condensation of the small quantity of steam in them, and the pressure of the air on the surface of the tin forces in the top and bottom, so that they become concave. While this concavity continues the meat is good. Should the contents of a tin putrify there is a generation of gas, and the top and bottom have a domed or convex appearance. It is fair to add that I have opened two or three tins, the contents of which were putrid and insufferably offensive, although the tops and bottoms were not domed. But I believe that, generally speaking, tins containing putrid meat are *decidedly domed.*

Another plan in which the preserving agent is heat is the following. The meat, with or without bone, is put into tins. As

soon as they are full the lids are put on and soldered down, and a small tube, the size of a quill, is fastened in the top of each canister. The tins are then placed in a bath along the centre of which runs a pipe carrying taps; into each of these is inserted a tube from a certain number of tins. The main pipe communicates with a vacuum chamber. The temperature is at first only raised to 212° Fahr.; communication is then made with the vacuum chamber, and the water in the tins is carried off as steam. The taps are next turned off and communication stopped, while the temperature is raised. In a couple of hours the meat is cooked, and the hole in the lid soldered. Small quantities of meat have been preserved in this manner and sent to England.

The last two processes are not the same as boiling meat. The contents of the tins are stewed at a very high temperature, rather than boiled or roasted, in the ordinary acceptation.

On opening a tin the meat is found to be slightly overdone, and surrounded by a quantity of gelatine, sometimes amounting to a quarter of the contents. It is not possible to import meat preserved by heat, not overdone. But in this respect there is much difference in the success of different companies. Some mutton imported by the best companies is of admirable quality, and practice enables any one, who gives it a fair trial, to eat it with as much relish as stewed English mutton. Some tins of rump steak and corned beef might easily pass for fresh meat, and require close examination to detect any difference in consistence, flavour, and appearance. The expense of preparing rump steak was such that it had to be given up, the price obtained in the wholesale market not being sufficient to cover the outlay. But I can say honestly that one brand was as excellent as rump steak taken out of a good meat pie.

The high temperature at which tinned meats are preserved diminishes their palatableness. The delicate flavouring matters, called osmazome, are in part driven off through the pin-hole, and this difficulty cannot be overcome Great perfection has nevertheless been obtained. Specimens of prime beef and mutton are brought into the market, comparing favourably with fresh English meat. As long as the meat imported was unwholesome or unpalatable there was no chance of its meeting the demand for larger and cheaper supplies of animal food, but now that the best joints are offered at

half the price of cooked English meat, a triumphant step has been made.

For the benefit of persons liking to have an analysis of everything they eat, and fancying that what the palate finds to be good is made better when the analyst certifies to its wholesomeness, I quote Mr. H. Watson's analysis of fresh mutton, fresh beef, and preserved mutton :—

| | Fresh Mutton. | Fresh Beef. | Preserved Mutton. |
|---|---|---|---|
| Water - - - - | 67.29 | 66.14 | 61.50 |
| Fatty Matter - - - | 2.29 | 2.32 | 4.02 |
| Fibrinous Matter - - | 22.10 | 24.50 | 20.60 |
| Albumen - - - | 1.48 | 1.22 | |
| Extractive - - - | 6.84 | 5.82 | 13.88 |
| | 100.000 | 100.000 | 100.000 |

Preserved Australian meat is not as nutritious, weight for weight, nor palatable, as fresh English meat ; though the best brands defy rivals. But the cheapness of imported meat should give it a high place among foods. As the best preserved beef and mutton are not more than half the price of, and little less nutritious and agreeable than, fresh joints, they should be eaten three or four days a week wherever economy is important. Not that I would assert that animal food is cheap, and certainly it is not necessary. The best home-grown meat does not much surpass in alimentary value good imported preserved meat ; of this the experiments of Dr. Williams, at the Sussex County Asylum, are conclusive. That physician gave some inmates a daily ration of home-grown meat, and to others an amount of Australian meat equal in weight to the uncooked allowance of fresh meat. He found that thirteen in twenty of the latter gained slightly in weight, in the course of a month ; the remaining seven neither gaining nor losing.

In weighing rations of uncooked fresh meat it is customary to allow 20 per cent. for bone, and 20 for loss in cooking. Ten pounds of uncooked represent six pounds of cooked beef ; the average price of the latter can hardly be less than 1s. 3d. the pound. Tins of boiled mutton, sent over by the best companies, cost 1s. 8d., and contain four pounds of cooked meat, of excellent quality and flavour.

Allowing, according to custom, that six pounds of preserved Australian meat have the same alimentary value as five of English cooked meat, 2s. 6d. laid out on preserved boiled mutton represents as much nourishment as is found in English beef costing 5s.

Tinned meat is most economical when eaten cold, or mixed with potatoes and warmed. Good Australian meat is eaten with greater relish, as a regular diet, when the palate is accustomed to it. It is not easy to tell whether the gravy is not as palatable as that from prime English joints. There may always be some preference for fresh gravy, but the palate is so little offended by the cheaper fluid that the difference ceases to be noticed, and is not thought of unless the attention is purposely drawn to it.

One of the pleasantest and cheapest methods of preparing Australian beef or mutton for table is to mince it carefully. It should be mixed with spice and salt, warmed thoroughly, and placed in a mould to cool. When cold it is firm, and just like fresh potted meat, and can be eaten on bread and butter as a sandwich. In this way inferior preserved meat is agreeable, while prime meat, like that of the best companies, is so much like English potted meat that a person ignorant of its source would not suspect that he was eating Australian meat.

After all it is not the flavour, consistence, or appearance of tinned meat that are the most serious obstacles to its use. It is the folly, bigotry, and conservatism of the poor, and the luxuriousness of the opulent. To prepare tinned meat for table is not difficult, but requires common sense and some knowledge of cookery. As long as thousands of women are ignorant of cooking and the properties of food, what can be expected? As long as housekeepers are prone to fancy that the cheap is bad, and the new poisonous, remonstrances are thrown away. The cheapness of tinned meats entitles them to a high place among foods, and their agreeableness is not so decidedly inferior to fresh meat that, with care and judgment, they could not be served up in palatable and economical ways. It is refreshing to see a man like the late lamented Charles Kingsley earnestly but temperately writing to the editor of a paper as follows:—"I find that I had misunderstood a Winchester tradesman when I stated at Romsey that Australian beef was offered at Winchester at 4d. a

pound. The cheapest Australian beef I know of is that which I have used for several years, that of the 'Australian Meat Company, Limited,' 52 and 53, Crutched Friars, London, which has just been reduced to 6d. per pound. I have seen similar tinned meat of the 'Victoria Company' offered in Winchester at 2s. 8d. for the 4lb. tin of beef and 2s. 4d. for mutton—or at about 8d. per pound. But it must be remembered that the sale price per pound does not really represent the value of Australian meat. I should put the real cost to the buyer of Victoria meat at 5½d. per pound; I should be inclined to put the Australian Meat Company's meat, supposing the two to be of the same value, at 4d. to 4½d. And for this reason. The bone in butchers' meat is about 25 per cent. In cooking, the loss of weight in vapour is estimated at 10 to 20 per cent.; add to this the loss of the most valuable constituents of the meat in the form of gravy, which happens in every cooking process save that of stewing, and average English cooks never stew; add to this the expense of firing, and I think we may fairly say that boneless Australian cooked meat, with all the gravy preserved as a jelly, and sold at 6d. per pound, does not really cost the consumer more than 4d. when compared with any raw butcher's meat which he can buy at 11d. which is the price usually paid by me. Whether my calculations are exactly right or not, the plain fact remains—that British people can buy as much cooked, boneless, undrained meat as they like at 6d. per pound; and (I am sorry to say) the fact also remains, that they will not buy it, as yet, for two reasons—or unreasons. First, the dislike of the ignorant classes to any strange food. Next, their stranger fancy, that because it is cheap it must be bad—'Horseflesh it may be,' as some of them say. How to get rid of these prejudices I know not. 'Against stupidity,' says Schiller, 'the gods themselves fight in vain.' If a newspaper like yours, of large circulation, would take up the matter, and be bold enough to tell the working classes that they are not, at least, in this one particular, wise, but exceedingly foolish; not thrifty, but unnecessarily extravagant; that if, on trying Australian meat, they find it not worth eating, they are at least much more dainty than your humble servant, his family, and all of his class who have made the experiment; then you will be doing a solid and, I hope, a lasting good to the working man."

Such splendid results have rewarded the perservance and energy of meat preservers, that as they are not relaxing their efforts, but continue trying to discover better methods than any in use, the day may come, rewarding the enterprising speculator. When I first thought about the subject the goal of goals seemed distant, however ; for though good cooked meat was imported in abundance, and offered at reasonable prices, the perfection of meat preserving, consisting in importing cheap, fresh, and uncooked meat, not differing in taste, appearance, and nutritious properties from English meat, and, when cooked by the English housekeeper in his own kitchen, resembling a joint just purchased at the butcher's, appeared out of sight. Science has added another to her claims on the gratitude of the world. She has annihilated space, and brought the perishable and prized productions of distant lands. Many triumphs over difficulties justified the hope that the day was at hand on which this signal victory would be achieved.

AN OLD OXONIAN.

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# FOOD AND COOKERY IN TURKEY.

BY DR F. W. AINSWORTH.

IN treating of the food and cookery of Turkey, or rather of the inhabitants of the Turkish Empire, it must be premised that there is a great difference—one that is even more marked than in other countries—between town and country, as also between Turkey in Europe and Turkey in Asia, including in both regions Mohammedans—Turk, Syrian, and Arabian—and Christian—Greeks, Armenians, Slaves, Bulgarians, and others.

In the greater part of Turkey in Asia the peasant's diet consists simply of leavened bread baked for the most part on what the Arabs call a *tajen*, which is the same word *teganon*, by which the Septuagint renders the Hebrew *machabath*, in Lev. ii. 5. It is a sort of pan of earthenware or iron, usually the latter, slightly convex, which is put over a slow fire, and on which thin flaps of dough are laid and baked with considerable expedition. The flour is ground daily in a hand mill, as of old, and the dough is prepared in small wooden bowls

(Exod. viii. 3; xii. 34; Deut. xxviii. 5, 7). Sometimes the cakes are baked against the side of a small pit duly heated, or in a pit from which the fuel has been previously removed. The latter is the thicker and better bread.* It is almost unnecessary to say that what is commonly known as bread in this country is to be obtained in all towns of any magnitude. The miserable substitute for such among the peasantry of the east is rendered palatable with milk, or the prepared butter, *yagh* of the Turks, *ghi* or *ghee* of the Arabs, *pachos* of the Greeks, *maslo* of the Servians. This is indeed the common butter of the country. Fresh butter is churned for the Constantinopolitans at the village of Belgrade, and near some other large towns, but is exceedingly rare. Milk is rarely consumed as such, but slightly acidulated by the addition of oak leaves. This is the Yagh-urt of the Turks, and leban of the Arabs, and it is common to Persia and India also, being both pleasant and nutritious in a hot climate, and more refreshing and less indigestible than our buttermilk. In the summer-time fruit is also consumed at breakfast, and most of the cottagers have in winter a little milk-cheese—the same as the Ceret of Switzerland and the Ricotta of the Italians. Lastly, as a great treat, they put Kaimak—the cream that forms on milk previous to ebullition, and which is skimmed off—on the cakes, and a little white sugar superadded makes them really palatable. Kaimak, like yagh-urt and yagh, are common throughout all Turkey and Western Asia, but all are variously prepared, and such preparations have different names in different countries. In Bosnia and Herzegovina the Kaimak is so thick as only to want a yellow colour to be like butter. When procurable, it is also eaten with honey. There are also preparations of goat's and sheep's milk; and as a rule in Asia the tribes who live in tents, as the Arabs, some Kurds, and especially the Turkoman tribes, from having more cattle, are much better off than those who dwell in huts or villages.

The common dinner of the peasant is wheat or maize crushed in a mortar and then boiled. This is rendered more palatable by the occasional addition of milk, boiled butter, or salt and pepper; it is the peasant's standard dish, and is generally known as Burghul.

* Some also bake bread in the Ziripulia, an earthen pan, or the Peka, an iron pan, previously heated.

When rice can be obtained, it is however preferred, and is similarly treated. The pilaw or pilaf in which boiled fowls or meat are superadded to the rice is a festive dish, and the guest's common resource, as are also eggs fried in yagh or ghee. The Arabs fry eggs and dates in ghee and call it a "royal dish." It certainly is a very palatable kind of omelette. A kid stuffed with rice and raisins is another ceremonial dish with peasants, but the most popular form of rice is the dolma—rice and chopped meat cooked in vine leaves like a sausage—a suburb of Constantinople is known as Dolma Baktchi. This is also part of the ordinary diet of the soldiery. To these few resources add a few onions, occasional mushrooms and other fungi ; a few vegetables and a little fruit ; a pipe and a cup of coffee, and you have the ordinary spare diet of a Turkish peasant, whether Christian or Mohammedan. A great variety of fungi are eaten in different districts with impunity, and when flavoured with onions, are very palatable. The Arabs are also well acquainted with truffles.

The poorest peasants in Turkey or Syria can in summer time obtain melons and the common vegetables of the country, such as melongenes, or Patlinjans, the blue fruit of the *Solanum melongena*, which is generally fried with onions, and the Bamia, the fruit of the *Hibiscus esculentus* generally cooked in ragouts or fried, but too glutinous for most European tastes. The former is now to be obtained in Covent Garden Market. The peasantry have also Sirok or sorghum, the lablab or dolichos, haricots, lentils, lupins, vetches, and other beans and peas, but potatoes are unknown. They also eat cucumbers and lettuces, and many fruits and vegetables, either cultivated or wild. At least a dozen variety of edible vegetables are met with almost everywhere. The Arab eats leaves of several species of Lactuca, Sonchus, and Cardui (the Cardoons themselves grow at times to an edible size without cultivation), and the roots of Cepa allium, a Scilla, and an Ixia. The men on board the steamers on the Euphrates, were, in the absence of other vegetables, kept in excellent health by various wild growths, such as leaves of atriplex, rumex, sinapis, etc. Scorzonera and salsifis sprout out wild in spring, white and delicious on some of the moister plains ; and rhubarb, as we use it for pies, grows rank below the snow line in parts of Kurdistan.

To speak from experience, the better class diet of the peasant is, as in other countries, best adapted to the climate. In the hotter regions, as Arabia, Mesopotamia, and in Southern Persia, the milk diet can almost alone ensure health and the enjoyment of life. Many Europeans, who have tried it as well as the writer, have declared that they have felt different beings, and have pointed out details as to its beneficial effects upon the constitution ; but these it is fair to remark, were enhanced by exercise and out-of-door life.

Leaving the poorer classes, we pass to those among whom a more fastidious taste has introduced certain refinements of cookery, but which in a general point of view are in Turkey characterised by an excessive use of the previously described forms of milk, of paprika or red pepper, of onions, and garlic, and of acids and honey. The most common soup (tchorba) is made of fowl and rice, or sometimes vermicelli seasoned with onions and cloves ; but also at times with yagh-urt or sour milk. It would seem that soups are more in use among Christians than Mohammedans, for it is a common thing to hear a well-to-do Christian designated as Tchorba-Bashi, or "soup-maker-in-chief." In Lent the Christians eat a soup of almonds and onions, with red pepper, salt, and a little oil. The idea is not pleasant, and the reality is still less so. The writer was once entrapped into eating a soup of sour milk and garlic. The effect was appalling, and it was with the greatest difficulty that he was enabled to keep his place at his host's table. The wine soups of Germany and Hungary have been introduced into Servia, but the Servians add to them honey and pepper, and scarcely use them, except at festive times, more especially at Christmas.

There is less variety of butcher's meat to be obtained in Turkey than elsewhere, for very little beef is eaten, and no veal. The destruction of a calf is looked upon throughout the country as a misdeed. At least this used to be the case, although recent innovations may have brought about exceptions to the rule. The ordinary butcher's meat is limited then to mutton, or lamb in its season, and occasionally to goat and kid. Pork is largely consumed in Servia and Wallachia. A Roumanian will almost live upon bread and lard with a little brandy. But as the Mohammedans do not allow pork to be openly sold, it is chiefly consumed in the country. Wild boars

abound in some parts, where the difficulty is to get the meat cooked. Hams are only to be found at sea-ports frequented by Europeans.

Beef, or rather the flesh of oxen, for cows are if killed disposed of in the country, although not abundant, is to be purchased at most large towns. It is used only as boiled in soup, in ragoût, and in sausages. Sausage meat, well peppered, is eaten without skin, and called kaima kebab—common beef sausages are called sutjuk. Beef is also salted and dried in the sun, or smoked and dried. This is the "pastrema," which, like pemican, is invaluable to the traveller.

The Turk is so indolent and so improvident that only two modes of cooking are really prevalent—the one is the kebab, the other is to cook in the oven. Hence the baker, or furuji, has much more business than in Europe. The meat is never basted, nor is the gravy collected. The red serum in imperfectly cooked meat is looked upon with horror as blood, and hence all viands are thoroughly well cooked. The shish kebab consists simply of bits of mutton or lamb, or liver and fat, run through with a stick, and roasted before the fire. Fowls, joints of meat, and the whole sheep or goats, more or less stuffed with onions, cloves, rice, and garlic, are also sometimes attempted to be roasted in a similar manner, but the result is generally a failure, some parts being burnt and others underdone. It is better then, in the absence of coal fires and kitchen ranges, to send to the bakers, and this is partly done by necessity, but still more from the habitual indolence of the people, as the general resource. Further, to avoid trouble, a whole repast, consisting of meat, ragouts, fish, fowl, vegetables, and cakes, are all sent to the baker at the same time. The baked meats are afterwards served upon large tin or copper dishes (tepsi or satsh), garnished with onions. The great dish with the Turks is a whole sheep stuffed with rice, chopped liver and intestines, some fat, and seasoned with red and black pepper. This is the pirintsch-doldurma-kuzi, or koyun dolmassi, or dolma kuzi. In Syria, a kid, similarly prepared, or with rice and raisins, is preferred.

The great dish with the Slaves is a pig fattened for Christmas; with the Albanians, geese fattened by being nailed down by one foot. It may be remarked here that as a rule geese and ducks are little eaten in Turkey, and indeed not to be met with in most parts

of the country, being considered as unclean. This prejudice is, however, gradually going by. Turkeys are also rare, but they are to be found among the Bithynians, who probably rear them for the Constantinople market. Hares and game are also rarely eaten because of the difficulty of bleeding them before they die. Hence it is that fowls constitute so large a portion of the food of the country.

Most of the middle and better classes in Turkey are partial to made dishes, and hence what the French call ragout and fricasées constitute accessories to every guest dinner. The most common of these side dishes is made of cuttings of mutton, fowl, or even beef, seasoned with onions and red pepper, and the whole stewed down together. Sour milk is sometimes added, to the discomfort of a European guest. Stewed mutton is called kapama by the Greeks, jagnenie by the Slaves. When green or white haricots are added, the Greeks call it kukia. With sorrel, currants or raisins, and aromatic herbs, it becomes the musaka, or musaku, of the Greeks.

The dolma has been already alluded to, and with a slight variety in preparation, as with onions or sour milk, but still in vine or other leaves dipped in butter, the said sausage is admitted to the table under the name of sarma; when served without vine leaves the same mixture of rice and chopped meat is called kuftala by the Turks, and kiephtedes by the Greeks. Oblong cuttings of mutton constitute the Puffburek. The Greeks are acquainted with mutton and lamb chops, and calls such keptheles. Ragouts are also made of sheep kidneys and liver, and these are sometimes served up with ox tongue, tomatoes, onions, or white haricots. Sheep's trotters are reduced to a state of gelatine with eggs and vinegar, and called patsche. This abominable mixture is often encountered in other made dishes. Few Europeans would struggle against the vile compound, still less so if, as is often the case, the whole is strongly flavoured with garlic.

*(To be continued.)*

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ATHLETIC TRAINING.—W. A. Rowe, the American champion bicyclist, who holds the champion records for various distances, from a quarter of a mile up to 22 miles, and who has lately arrived in England, is a staunch teetotaller; indeed, he states that he has never tasted a drop of alcoholic liquor, or used tobacco in any form. As to his diet when training, he says that he eats oatmeal, beef, mutton chops, and eggs, plenty of them, with hot tea to drink, limiting himself to one cup at each meal, and never drinking anything between meals.

## PALATABLE DRUGS.

Our readers will recollect that under the head of new remedies we, last month, mentioned the Saccharine Tabloids of Messrs. Burroughs, Wellcome, & Co., of Snow Hill, London, E.C. Our interest in these tabloids increased, and we felt much curiosity as to the way in which they were made. At last we could refrain no longer, and wrote to the firm, explaining our desire to see their manufactory. A most courteous letter reached us, thanking us for our note and most kindly giving the permission for which we asked. Accordingly we made our way to Bell Lane, Wandsworth, and were met by a very intelligent gentleman, who gave himself an immensity of trouble in showing us everything, and explaining all we wanted to know. The exterior of the factory is unpretending, and little seems going on, but the moment we passed into the building we found that first impressions were erroneous, and that a hundred busy workpeople were manipulating the most perfect appliances which the art of the mechanical engineer could supply. A cleaner and better managed factory we never went over, and when we add that a piano has been placed in one of the rooms for the benefit of the girls at their tea, we have said enough to show that the proprietors do not think only of money making, but have the best interests of their workpeople at heart.

We must digress for a minute and explain that of late the art of the scientific chemist has developed in a marvellous manner. Fresh and most powerful remedies have been prepared with which the physician can treat his patients in a way impossible half a generation ago. But the age is fastidious. People will take medicines if they are palatable, not often without. Here a difficulty arises. When medicines are unpalatable they will not be taken regularly, and, still worse, the physician is compelled to combine many drugs in one formula, often to the injury of the patient, the object really being to diminish the number of doses, so that the invalid should only take two or three doses a day. There is no doubt that many drugs act far better in minute doses taken many times a day, and it is better not to mix half-a-dozen sorts together. Were it possible to separate the active principles and to take them several times a day in the

proper amount, the gain to the patient could not but be immense. This is precisely what Burroughs & Co. have done. The active principle is separated, weighed, and prepared so that it can be taken in the proper doses just when needed. We saw that the tabloids fully met the requirements of the age, but there were uneasy suspicions. Were the tabloids pure; were they mixtures of a great deal of sugar or starch, or something else, and of a minute particle of the drug? In short, we lacked information. The reader will judge of our surprise when we saw with our own eyes the pure drug being weighed and compressed by delicate and powerful machinery, and prepared in that familiar and palatable form which soon promises to supplant all others.

In the first place great care is taken to obtain perfectly pure samples of drugs, and the managers by this time know where to get drugs of the kinds and quality they require. Some are imported from America, others from the continent, and some are obtained from different well-known English makers. The samples are tested and only used if reliable. Then in a warm room the drug is weighed out, sometimes by machinery, at other times by hand, and compressed by a powerful press, the finished tabloid being turned out dry, white mostly, palatable, firm, and ready for use. Certain numbers (40, 60, or 100) are placed in air-tight little boxes and marked, and then they are ready for the market.

Nothing looks much simpler than the machinery; some of these machines are pouring out so continuous a stream of finished tabloids that, in spite of the British appetite for drugs, the wonder is where are all the consumers to come from. Forty or more kinds of tabloids are manufactured, and among them we saw Quinine, Bromide of Potassium, Chlorate of Potassa, Dover's Powder, Ipecacuanha, Cascara Sangrada, Saccharine, and Cocaine. Most are for internal use, others for the throat. Again, minute tabloids for hypodermic injections are made, which are most convenient to the practitioner, and there is no possibility of mistakes being made in the dose. Sometimes people cannot swallow pills and tabloids; what then? Nothing easier. If the tabloid is loosely wrapped up in a little piece of tissue paper and put in a spoon, which must next be filled with water, it can be swallowed without difficulty.

The contrast between rows of medicine bottles full to the cork of strong-smelling and unpalatable drugs, and a neat little case containing 20 or 30 charming bottles full of minute tabloids, can be readily understood by an invalid. The hour for taking the medicine ceases to be a misery; no loathing of the stomach is excited, and the recovery of the sufferer is thereby actually promoted. Even the chemist need not suffer, for he can still act as a middle-man and retail the tabloids, which he receives direct from the wholesale London houses. Moreover, the drugs in this form do not get mouldy or decay, or get an unpleasant taste. They can be kept at hand ready for use at small expense, and taking up little room. Nay, most wonderful of all, they can be carried about in tiny bottles in the pocket, a convenience that invalids will appreciate. But we must pause. We shall shortly return to the subject and explain the process of making malt extract and some other matters, for which we have not space this month, but which are of great importance.

## DIETETIC NOTICES.

### COCOA.

WE have received from Messrs. J. S. Fry and Sons samples of their "Pure Concentrated Cocoa," and of their "Malted Cocoa." The former is well-known to every one, we should say. If there should, however, be amongst our readers some who have not yet made the acquaintance of this agreeable and easily prepared article of food, we recommend them to lose no further time, but to obtain it, and to judge for themselves the full extent to which it merits the high praise it has received from the medical press and profession. We have used it in our own circle for a number of years, and have found it of unvarying strength and quality; but we had not, until recently, had an opportunity of trying Fry's Malted Cocoa. This preparation, as implied in its name, consists of a combination of pure Cocoa Extract (Fry's) deprived of the superfluous oil, and Extract of Malt (Allen and Hanbury.) The result of this combination is the production in a concentrated form of an article which presents all the valuable dietetic properties of Cocoa and Malt, and which bids fair to become even a more universal favourite than the other preparation to which we have referred.

### AUSTRALIAN WINES

HAVE come rapidly to the front, of late years. Fifteen years ago, when we wrote a special article upon this subject, which appeared in the columns of *Public Health*, the great majority of our friends seemed incredulous at the notion of the products of the

Australian vintage ever getting into general use. But times have changed since then, and so have opinions, for with proper care in selection, the most fastidious palate can be gratified. We have lately came across some excellent wines, imported from the St. Hubert Vineyards, situated in the Yarra valley, about 25 miles from Melbourne. They are of two classes, white and red,—the former preferable, in our opinion, to Chablis and many Hocks, sold at much higher prices; while the red wines unite the refreshing qualities of Claret with the sound body of Burgundy. The St. Hubert wines are very favourably spoken of by Mr, Froude, in "Oceana."

## POPULAR FOREIGN WINES.

WRITING concerning wines, we must not omit to mention samples of Port, Sherry and Claret, sold at such a remarkably low price that we confess to having entertained strong doubts as to their character. Upon examination, we were quickly led to cancel our unfair suspicions. Further, having the pleasure of personal acquaintance with Dr. Redwood, Ph.D., the eminent analyst, whose name is appended to one of the testimonials published by the Company established under the name of the Popular Foreign Wine Company, we took an opportunity of putting some "straight" questions to that gentleman, who answered them with his usual urbanity and clearness; and it appears that, not only had he thoroughly tested specimens taken indiscriminately, previous to giving his certificate, but that he will continue to conduct similar examinations, from time to time. The public could not have a better guarantee of good faith and permanent purity; and these wines, which are prepared from the natural juice of grapes grown in the best South African Vineyards, ought to supplant (and we trust, on sanitary grounds, soon will displace) the fiery, so-called cheap—as if anything could be cheap which injures the health of the purchaser!—stuff made up from the diluted dregs of Continental wine-presses, and fortified with vile Hamburgh spirit.

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AN AMATEUR BREAD MAKING COMPETITION was held last week, a prize for the best home-made loaf having been offered by the editor of *Cassell's Magazine*. The loaves sent in by competitors (several hundreds) were subsequently distributed to poor persons in the East of London and to some of the poorer hospitals.

PUBLISHERS' NOTICE.—DIET AND HYGIENE will be Published on the 1st of each month, and Advertisements should be sent in before the 23rd of the preceding month to insure insertion.

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# Diet and Hygiene:

A MONTHLY MAGAZINE

OF

FOOD, DIETETICS, & HEALTH.

VOL. I. MAY, 1888. No. 5.

## COMPLETION OF OUR FIRST CENTURY.

JUST as we had penned these few words, a candid friend, who has already figured in our pages, ("An Apology for Existence," Number I.), happened to look over our shoulder, and promptly observed "Of course, having reached only your fifth month, you will expect people to calmly submit to such "———; we really believe, if he could have completed his sentence, he would have at least added "nonsense," but, fortunately for him, the striking of a distant clock reminded him that he had not a moment to lose, and away he sped to catch his morning train to town. Perhaps, on his return in the evening, his first inquiry will be whether Colney Hatch or Hanwell is to constitute our future residence.

But, if he had stayed with us for five minutes, and had shown a little of the calmness which he failed to credit our readers with, we think we could have set him right. Upon further reflection, indeed, he would have been fain to admit that other centuries can be reckoned than those of time, and that one can count hundreds of men, or of anything else of a mundane character.

For some period we have wavered between Modesty and Gratitude, after the fashion of the famous picture of the actor hesitating whether he shall adopt Tragedy or Comedy as his sovereign queen. We feel, however, that if modesty any longer keeps us in check, we shall

incur no small risk of laying ourselves open to the charge of ingratitude. This is more than we could bear, and we therefore hasten to express, in the phraseology of Shakspeare, "much thanks" to the many good friends who have assisted us in the arduous task of establishing *Diet and Hygiene*. We are conscious that all we could say on this matter, though it might fill column after column, would be merely "Words, words, words," compared with the feelings which we should be unable to do adequate justice to. Will they, consequently, kindly accept this short, imperfect acknowledgment of our deep obligations to them for their cordial co-operation, their ready help, and their valuable advice. "Much thanks" to them for the way in which they have worked to make this periodical, from its commencement, an assured success. The circulation of our second number exceeded that of our first by two thousand, two hundred and fifty copies, and subsequent issues have shown that *Diet and Hygiene* has taken a firm and steady hold upon public support.

If we are not careful, we shall soon be reminded that, in speaking of thousands, we have allowed our century to slip out of sight. It is not so, however. Any expression of thanks from us would, indeed, be cold, were we to omit reference to the generous reception which we have met with from the Press, both London and Provincial. We have not heard of a single unfavourable comment, while the favourable criticisms which have been brought to our knowledge have moer than completed a century. We do not purpose to weary our readers by recapitulating these encomiastic notices, and we will content ourselves with quoting one only, which chanced to make the hundredth.

"*Diet and Hygiene*.—This is a magazine which should be widely read, since the subjects of which it treats interest everyone, no matter in what position, social or otherwise. The style is plain and attractive, the information sound, and the editing judicious. We hope this new venture will have the long and prosperous career that it deserves."—*The Metropolitan*.

The conflict between Gratitude and Modesty is over, and the latter gently leads us away, blushing mentally in consciousness of our shortcomings, and determined to imitate Sempronius, so as not only to "command success," but "nay more, deserve it."

# HEALTHY HOMES.

WITHOUT healthy homes we cannot have healthy people, and without healthy people we cannot have any marked social or intellectual advancement.

"Show me the company that a man keeps, and I will tell you the sort of man he is," wrote a great English author. In other words just as the boy is said to be the father to the future adult, a man's character and disposition must, in great measure, depend upon his surroundings. He is more or less a creature of circumstances, and there never was a truer line penned concerning mankind than that of one of our poets, "Such as they're circumstanced, they are."

Suppose a child placed in a squalid house under the charge of drunken, dissolute persons, ill-fed, and ill-taught, what must that child become by the time it has reached, if it should pass all the difficulties in the way of reaching, maturity? In the majority of cases, such a child must be debased, morally as well as physically, and turn out a drunkard, a thief, or otherwise a disgrace and a pest. And then society, offended and outraged, steps in to correct and punish the crimes for which she is, herself, responsible.

Millions of pounds are spent annually in illusory endeavours to improve the condition of the heathen, and in protecting with British bayonets the introduction of gunpowder, "fire-water," and other articles to the "rough, untutored Indian," or to the mild natives of the Pacific Islands, whilst we overlook the fact that, close to our own doors—within, probably, a few minutes' walk of our own well-conducted homes—there exists a state of things which constitutes a disgrace to our boasted civilisation, and a slur upon professing religion.

Look, for a moment, at the filthy courts of London, the sunless alleys of Manchester, the underground cellar-dwellings of Liverpool, and the crowded wynds of Glasgow; would any reasonable individual venture to assert that we could expect to find decency, order, or sobriety amongst the denizens of these foul, reeking places? No; and if any one hazarded such a belief, he would be regarded more than qualified for a lunatic asylum.

Yet, the ordinary mode of dealing with the question is almost as

absurd. We blind our eyes, wilfully, to the causes of so much crime and intemperance, and we inflict the utmost rigour of the law upon those whom we have allowed to grow up under such baneful influences.

Further, in consequence of our apathy,—indeed, it would be more truthful to say, as the result of our neglect,—the evil becomes greater and greater, and while rows after rows of houses for the upper and middle classes spring up in every direction, the very poor continue to be dispossesed of the little space they have been allowed, upon sufferance as it were, to occupy, and are driven to herd more closely than ever. If a railway or a new street is projected, motives of economy will always impel its promoters to select the localities inhabited by the poor, who cannot claim or obtain large compensation, in preference to those occupied by people of a higher social grade.

Indeed, the displacement of the residents of these humble localities is often hailed as a public boon ; and when we read in our daily papers that a newly-contemplated railway or street will necessitate the demolition of the homes of a thousand or more poor families, we are rather too apt to congratulate ourselves upon the fact that the neighbourhood in question will be rendered more respectable by the wholesale eviction. But, when these unfortunate people have been turned out, when the contractors' men have pulled the last portion of roof from above the heads of the helpless victims of improvement, these thousands of people go to swell the number of the already too closely packed occupants of other courts and alleys, more crowded, if anything, than those from which they have been ejected. Dives, as a landowner or leaseholder, gets a good, round sum of money in compensation for his land, or his house, enabling him to invest again in a larger scale elsewhere, while Lazarus is possibly hauled before the magistrate for daring to interfere with ("molest" is the legal phrase) the workmen who have been sent to pull his shabby lodgings about his ears, and he must, indeed, deem himself fortunate if he can find, some miles it may be farther off from his employment, a shelter at the same exorbitant price as that previously extracted from him.

Thus far, we have spoken only of the dwellings of the town-poor ;

but are their rural brethren much better off? We think not. They are often housed in hovels so wretchedly built, so badly ventilated, and so destitute of the most common sanitary requirements, that a landlord or a farmer would shrink from keeping his horses in a stable as meanly constructed as are many agricultural labourers' cottages.

We shall, doubtless, be told that we have coloured the picture too darkly, and that we have not given sufficient credit for the efforts which are made to ameliorate this state of things. We admit the existence of such efforts, but they are too spasmodic, of too exceptional a character, and on too limited a scale, as well as too much isolated, for them to be considered as a remedy for the overcrowding of the poorest classes everywhere, and their wholesale eviction in large towns, under the plea of public necessity; although great praise is due for such philanthropic exertions.

The whole question is one of vital importance, alike to individuals, to society, and to the State, and cannot be too strongly urged upon the attention of the Legislature. We venture to assert that "Healthy homes and healthy people" would be as good an election-cry, at any rate, as a clamour for minimising the number of mothers-in-law by marrying widowers to deceased wives' sisters, arguments in favour of taking a tax off one branch of industry to put it on another, or any of the other ingenious devices for arousing partisan spirit, and eliciting support.

M.P.

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## WATER FOR TOWNS.

### CONSTANT SUPPLY *VERSUS* INTERMITTENT.

We need not indulge in any lengthy disquisition on the part which Water plays throughout Nature. One of the four elements recognised at an early period by ancient writers, it enters into the composition of most terrestrial substances, whether organic or inorganic; while forming, as it does, according to the researches of Chevreuil, about two-thirds of the entire weight of the human body, it is absolutely necessary for carrying on the chemico-vital operations of the living system.

What we have to deal with here is water,—"honest water," as Shakspeare wrote—regarded in its sanitary relations. Its value, in this respect, is so universally admitted, that we need not dwell upon it. The question before us resolves itself, therefore, into the simple inquiry—How should water be supplied to the inhabitants of towns, who, owing to local circumstances, must derive their supply from a more or less distant source, through service pipes? The answer which would be given by everyone who has devoted attention to this subject is, that the supply should be *constant*; and that it is not invariably so is attributable, in part, to the ignorance, apathy, or powerlessness of the consumers, and, in part, to the sordid, selfish policy shown by Water Companies generally.

The Reports of the House of Commons' Committees upon Water Supply, and of the Royal Sanitary Commission, have demonstrated in language more forcible than is commonly to be found in such documents, that in many parts of London, especially in the poorest and most densely inhabited districts, the quantity and quality of the water supplied were far from being what they ought to be; and it not unfrequently happens during the summer months, when there is greatest danger of some epidemic breaking out, many thousands of persons are kept for weeks in a disgracefully deficient condition, almost amounting to a water-famine.

The quantity of water supplied for each individual in a community necessarily varies according to locality and other circumstances. In villages the estimated daily quantity is about 10 gallons per head for all purposes; while in towns possessing a good supply, the average reaches at much as 35 to 40 gallons. Returns issued by the Board of Trade show that the water supply of the various towns named in the reports ranged from as low as 12 and 14 gallons per head of the population daily, in Norwich, Derby, and Manchester, to 50 gallons in Glasgow. This city can boast, not only of a larger supply of water, but of a purer (derived from Loch Katrine) than any other populous place in the Kingdom. If we cross the Atlantic however, we find that our American cousins beat even Glasgow in respect of quantity, the daily supply to New York from the Croton (between 40 and 50 miles away) being estimated at 70 to 90 gallons for each inhabitant of the districts provided with Croton water.

The daily quantity per head in Paris is 30 gallons ; in London it varies from 25 gallons, upwards.

Compared with the average of village water-supply, these figures for towns may, at first sight, appear high ; but we fear that to a certain extent they are placed in excess of the actual amount. The reader must also take into consideration the circumstance that large quantities of water are used in towns for manufacturing purposes, which would make the average per head seem much higher than what is really used for domestic purposes ; while a much larger quantity of water is necessary in all places where the system of water-carriage is resorted to for the removal of sewage-matter than where such a plan is not employed. The sewers rarely contain more than a few inches of water, and the supply of water, particularly in poor neighbourhoods, is too often inadequate to the efficient flushing and cleansing of the drains, which consequently become loaded with refuse matter in every stage of decomposition. Hence, it will be seen that no comparison can be fairly instituted between localities which possess no general system of drainage, and where, as a consequence, there is a difficulty in the disposal of surplus water, and towns provided with proper sewers and drains, where any so-called waste water passing into these outlets would, of course, serve a useful function in cleansing them.

Here we come to one of the principal objections urged from an economical point of view, against the system of constant water supply, namely, that with such an arrangement much water would be wasted, either through neglect, or through imperfect fittings. So long as it is left in the hands of commercial companies to provide, and make large profits out of, one of the greatest necessaries of life, such arguments—based upon false notions of economy—will be brought forward, and will receive the support and approval of a certain section, which regards £. s. d. as of more importance than the welfare of the community. It was not so in ancient Rome, whose aqueducts, constructed and maintained at the public expense, still remain to astonish us with their grand proportions. Of late, much has been said and written concerning the desirability of the Government's purchasing the rights of the existing Gas Companies, so as to make the supply of gas a public, instead of a private, matter, as

has been done with advantage in the case of the Post Office Telegraphs. If such measures are advisable with respect to gas—and their advocates show excellent reasons in favour of their views—by how much the more is it necessary that the supply of water should be made a public trust and duty?

But, as such a consummation, though "devoutly to be wished for," does not appear to be close at hand, despite the formation of County Boards and other Local Government schemes, we must be content to deal with the matter as it stands. One great argument used by the defenders of the system of intermittent water supply is, as has already been stated, that under the constant supply system there would be greater liability to waste, through carelessness on the part of the consumers, or through inefficiency of the fittings employed. Facts, however, do not support this assertion; indeed, they go to prove the contrary. We know one large town where the constant supply system has been in full operation for years, and the average quantity used is not much more than one-third, as compared with what was formerly wasted under the intermittent system; and a high authority on the subject, Mr. Michael, in the "Manual of Public Health," urges that a constant, high pressure would necessitate a supervision over fittings now greatly wanting, while its omission leads to much leakage and loss of water.

By the use of suitable apparatus, and the introduction of the constant supply system, we should be able to do away altogether with storage cisterns, which are now requisite under the intermittent system. Very few persons, comparatively, whose attention has not been specially directed to this point, have any idea of the abominable extent to which house cisterns become fouled by the deposit of dust, dirt, &c. The Royal Sanitary Commission, reporting on this point, observed:—"In houses of the rich the cisterns are frequently more or less unsatisfactory, perhaps not free from effluvia caused by drainage pipes, whilst in the more confined and less cared-for houses of the lower and working classes, they are often the receptacles of putrid matter." Some few years previously, a Special Committee of the House of Commons, appointed to inquire into the water supply of the East End of London, reported that "The cisterns used for the purpose of storing water for household consumption are probably a

more fertile source of impurity than any pollution of the river whence the water is drawn. Decaying animal or vegetable substances, or other impure matters, may easily find their way into a cistern, and are more likely to engender disease than any impurity existing in the water before it flows into the cistern." Of course, if we extend the inquiry further into the evil effects of the intermittent water supply, where no cisterns exist, and poor people are obliged, through the want of adequate storage, to keep water in pails or tubs in their living-rooms, the case becomes still worse ; and the more we regard the bad results of storing water in house cisterns or other receptacles, arising out of the intermittent supply system, the more evident is the wisdom of the conclusion at which the Royal Sanitary Commission arrived :—" We think that Parliament should, as much as possible, insist on the constant service which the general statutes have enjoined."

Before we leave this point, we may remark that the amount of waste through the overflow pipes of cisterns is very great ; so that, if only on economical grounds, it would probably be to the advantage of all Water Companies to do away with storage cisterns, and to adopt the high pressure, constant system.

Besides the certainty of the water becoming deteriorated by being kept in cisterns, there is another danger to health arising from the occasional use of the intermittent system, when that water is delivered by services designed for the constant system. This was first pointed out by Dr. Alfred Carpenter in an article published in *Public Health*. That gentleman showed that there is always risk of sewage contamination where the supply is less than the demand, in this manner. If the pipes pass along through sub-soil contaminated with sewage, and the pipes are, as is often the case, corroded and leaky, when they become partly empty, the pressure from without inwards causes some of the sewage to be drawn into the defective mains, and thus to become admixed with the pure water supplied from the works. In the same article, Dr. Carpenter states, as we have already observed, that the consumption of water in towns varies more in accordance with the quality of the fittings employed than with the quantity of water required. For instance, at Croydon, it was found that the water supply amounted to 56 gallons per head

daily. At Dr. Carpenter's suggestion, the Local Board of Health instituted an inquiry through their engineer, Mr. Baldwin Latham, and it was proved, by actual experiment, that in those districts where the requirements were for household purposes only, (there being no trade requirements,) $7\frac{1}{2}$ gallons for each individual per diem were sufficient, so that all supplied above that quantity might be regarded as waste.

In addition to the various points which have been discussed in this article, there is another of no small public importance, bearing upon the question of the superiority of the constant over the intermittent system ; we refer to the use of water in case of fire. Under the intermittent system much valuable time is frequently lost in obtaining a sufficient quantity of water for working the engines, as the water, when turned on at the main, goes to fill the various house cisterns in the neighbourhood, and until these are full, a thorough supply cannot be had for the engines. On the other hand, under the constant, high pressure system, the mains being always charged, and the pressure full on, an efficient quantity can at once be procured from the stand pipes. A striking proof of the advantages of a ready and adequate supply of water, in this respect, occurred in New York ; where, after the introduction of the Croton water into the city, it was found that the facilities for extinguishing fires were so greatly increased, that the insurance companies all voluntarily lowered their rates of premium.

W. A.

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# FOOD AND COOKERY IN TURKEY.

By Dr W. F. Ainsworth.

*Continued from page* 196.

Among the Arabs of the higher class the first dish is almost constantly soup (shurba), and the last the pilau. The intermediate course consists of a great variety of dishes. Among the more common and characteristic are mutton in small bits roasted on iron skewers, with slices of either apples or artichoke bottoms and onions between each piece ; mutton minced small and beat up with spices into balls which are roasted on skewers. Mutton or lamb stewed with gourds,

roots, herbs, and chiches ; fowls, pigeons, and sometimes quails and other small birds, boiled or roasted, but more frequently made into ragouts. The Mahshi or Mashee is the dolma of the Turks, and is composed of mutton, rice, pistachios, currants, pinenuts, almonds, suet, spice, and garlic, which are enveloped altogether in a badinjam, cucumber, or gourd. The Mahshi is, in the absence of these enveloped in the leaves of vine, endive, beet, or borage, and is then Yaprak. A lamb, stuffed in the same way and roasted entire, is called Kharuf, or Kharuf Mahshi. Minced meat, with pomegranate seeds, is also spread upon thin cakes and baked in an iron plate (Lahemagin). Sausages, a great variety of pies (Sambusak), and sweet dishes and pastry (Baklawa, Kunafi, Burak) ; the former made with honey or dibs (juice of grapes). A few plates of sweet flummery (Faluzza) are served up by way of dessert ; and last of all appears a large bowl of Khushaf, which is a decoction of dried figs, currants, apricots, cherries, apples, or other fruit, made into a thin syrup, with pistachio nuts, almonds, or some slices of the fruit, left swimming in the liquor. This is served cold and as a drink.

Eggs—yurmurta in Turkish, baydat in Arabic—constitute one of the main resources of Turkish diet, and are also the only resource for the traveller. They are generally served up fried and swimming in yagh or ghee, and this with the common cake like bread, dipped in the butter, is rather relished than otherwise. Plenty of yagh-urt takes away the richness. We have spoken of the royal dish of the Arabs, fried eggs and dates—it would appear coarse as contrasted with the refinements of sweet dishes, but it is admirable in Arabia. There are not wanting those who can make omelettes, called by the Greeks, Sphuggaton, and can poach eggs , but they are not often met with. The Servians make an omelette, by sprinkling flour of maize on fried eggs, and turning them in the pan. They call this prevrata or prevratusha. The traveller has one comfort, that he can generally find eggs in any village, although they are sometimes wanting in the post-houses, Khans, and Kirwan-serais or caravansaries.

Fish abound in Turkey, and yet from the natural indolence of the people are rarely captured, and consequently as rarely eaten. We have seen from the ships' sides in the Gulf of Alexandretta the water teeming

with fish, yet there was not a fisherman in the place. Sea-fish of some kind or other is however almost always to be obtained in seaport towns, and the Constantinopolitan market is fairly supplied, especially with the mullet and the other fish of the Bosphorus. Yet owing to this indolence the Christians are reduced in Lent to the consumption of salt fish or dried fish (kuru baluk). At the season for tunny there is a large consumption of the more favoured portions of the fish. The Danube abounds in sturgeons and sterlet, but this is especially a fish that, being like veal, requires good cooking, and this is just what it does not get. As to the caviare, or roe of sturgeons and sterlets, retailed in the bazaars of Widdin, Silistria, and other Turkish towns on the Danube, it is simply offensive.

Fish is mainly salted at seaports, but large quantities are also salted on the Danube and at the lakes of Ochri and Scutari. As the black-fish abound most at the outlet of the sea of Galilee, so most fish are captured by nets (zagagnia) at the outlet of the lake of Scutari, and near Stronga, at the issue of the Drin from the lake of Ochri, where vast numbers of fish are carried down by the current.

The rivers and lakes in Turkey in Asia, as well as in Turkey in Europe, generally abound in fish, and the epithet of Baluklu-su, or "fishy river," is almost as common as Kara-su, or "black water." But whilst the trout of Greece and Ochrida are celebrated, they are rarely caught in the rivers of Taurus and Kurdistan, where they breed. The great rivers, as the Euphrates and Tigris, abound in enormous siluridæ. The large species, as the *Silurus glanis*, are very ferocious, and Bochart (*De Pisce Tobiæ*, p. 748) believes that to be the fish which assailed Tobit. Others think it was a saurian, but as the incident occurred at Nineveh we are inclined to side with Bochart. We have been obliged to beat a hasty retreat from the Tigris, and from even its smaller affluents, by the assaults of the numerous fish. Barbel attain an enormous size in the lower portion of the Euphrates, exceeding at times twenty feet in length. Bass (*Labrax lupus*) ascend most rivers. Perch, once held sacred at Latopolis, abound. The sacred fish still to be met with in the East, as at Urfah and elsewhere, are generally carp. There are many other fish, but the most common in Syria is the simmak el aswad, or "black fish," so much esteemed by the Romans and the Gentiles, but,

being like other siluridæ destitute of a scaly covering, held as unclean by the Hebrews. Our sailors called it cat-fish, and would not eat it, yet it is like eel, very good when properly cooked, but very rich and somewhat indigestible. Many travellers have had an opportunity of tasting it at Tiberias, for it is the most common fish in the sea of Galilee, and is to be met in shoals in certain parts of the lake. It is in consequence of this abundance in spots that it is fished both in Genesareth and in the waters and lakes of the Orontes from a boat, the fisherman having a long pole with a large hook at the end, which he drags swiftly along the bottom of the water, every now and then fixing a huge siluroid through the body. This is apparently the kind of hook alluded to in Matt. xvii. 27, where the Saviour bids Peter Simon to go to the sea "and cast an hook, and take up the fish that first cometh up," and not a baited fishing hook as is commonly supposed. This fish was known in the time of Burckhardt to be the same as the fish so distinguished and so much sought for as a delicacy by the ancients.

In respect to vegetables, green and white haricots and cabbages constitute the staple in Turkey in Europe. It is only is Bosnia, Herzegovina, Montenegro, and Servia that potatoes are met with. In Turkey in Asia potatoes and the cabbage tribe are alike wanting. But in the latter vast quantities of melongenes or aubergines, as the Levantines call them, bamias, pumpkins, and cucumbers are consumed. In the western regions they have learnt to make a purée of haricots (papula), a refinement in cookery as applied to peas, lentils, and other farinaceous food, which has not yet been largely introduced in our own country. They are, however, generally eaten simply boiled with the usual yagh or ghee or with stewed meat seasoned with red pepper. During Lent haricots are boiled with oil. Cabbages are also treated with boiled butter, as in southern France, and sauer-crout (kisco kupus) is not unknown in Servia.

A great pea called Lepleb or Leplebi (*Dolichos Lalab*), is eaten roasted like chestnuts in winter, and excellent beans are met with in Macedonia and Thracia, but lentils are mostly consumed in Servia and Greece. In Syria, however, as in olden times, the Hebrew adashim or lentils, still called addas in Arabic, are the common basis of pottage. While engaged with a party in the survey of Taurus

and other remote regions, a sheep was bought when the occasion presented itself; it was then cut up and a portion, further divided, was served up at about four o'clock in the morning with lentils, flavoured with onions and pepper, and this with now and then a drink of yagh-urt on passing a village or encampment, lasted till about four in the afternoon, and often far on in the night.

Lettuces and cucumbers are largely eaten, but rarely as a salad. The Turks generally substitute bruised nuts for oil; the Greeks, olives (Terai-ulu Salata).

Both Turks and Greeks also make a salad of cucumber, olives, garlic, onions, and vinegar, which few Europeans care to participate in. Rice, we have seen, is eaten as a soup or in a pillaf, but the better classes add tomatoes or saffron. What the French call "riz au lait" is mostly eaten cold. It is then called Sutlia. Maize is eaten before it is ripe, or when ripe, baked under ashes, or beaten into a paste and diluted with milk. This is a great resource in Turkey in Europe, and is called by the Turks Katshamak, by the Slavonians Kulia, and by the Roumanians Memlige. The Bulgarians and Albanians prefer the bruised maze with Yagh. The former call it Kuvelian, the latter Varenik. Thus almost throughout Turkey in Europe and Turkey in Asia we find wheat or maize ground in a hand mill, or bruised in a mortar, to be with rice the main staple in the country. But habits differ with localities. In remote Kurdistan, after feeding for weeks upon the cake or sconce, which is made to represent bread, we have come upon a fertile valley where excellent bread of maize has been presented to us by the hospitable peasants. In some districts millet takes the place of maize or wheat, and barley and oats are also made into porridge. A little show of culinary taste is sometimes made by adding cream or Kaimak, or other preparations of milk, or by the more sensible addition of bits of meat or fowl. A mixture of barley and meat constitutes the Kesche of the Slavonians, which is eaten upon holy days and holidays.

(*To be continued.*)

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THE PUBLIC HEALTH.—The Registrar-General reports that the deaths registered last week in twenty-eight great towns of England and Wales corresponded to an annual rate of 19.9 per 1,000 of their aggregate population. In London 2,579 births and 1,552 deaths were registered. Allowing for increase of population, the births were 247 and the deaths 221 below the average number in the corresponding weeks of the last ten years.

# BRITISH HEALTH RESORTS.

## No. 5.—ILFRACOMBE.

Ilfracombe stands at the extreme north-west point of Devon, and a better position for a watering-place could hardly be found. Looking almost due west the vast mass of Lundy Island is seen rising above the restless waters, and to the north, for forty miles, stretch the Southern Highlands of Wales, that exquisitely beautiful and romantic land, still faithfully preserving, among its most precious treasures, its ancient and musical tongue ; while its people are passionately devoted to what may be called a popular, congregational form of religious service. To persons only accustomed to the solemnity and impressiveness of the Roman Catholic Church, amid most favourable surroundings, or to the decorousness and coldness of our own church, to enter a Welsh Calvinistic Chapel in some secluded, far-away valley is startling. There may be little learning, and less dogmatic theology, but there is a large amount of life, zeal and heartiness, and the good faith of the minister, and his congregation acquit them of any charge of irreverence. It is something entirely novel to stand in a lane, a hundred yards from some tiny village chapel, and listen to the preacher's voice being raised until a perfect storm of impassioned words is poured out, captivating the imagination of his hearers, although not necessarily convincing their reason. Upon the land of the ancient Cymri, Ilfracombe looks, and from Swansea to Combe—the familiar local name for the beautiful watering-place—the distance is hardly 30 miles. To the east stretch, for fifty miles, the gracefully wooded heights of the Bristol Channel, in places leafy and picturesque to the water's edge, in others bare and rugged. From Combe to Cardiff and Bristol, a distance of 50 miles or more, extends that magnificent water-way, down which come thousands of stately ships and swift moving steamers, and which is at times ploughed by cheap excursion boats—from Bristol and Portishead. A pleasanter spot than Ilfracombe it would be hard to find, with an individuality distinctly its own, a something wholly unlike the south coast, and totally different to the Lancashire watering-places, in short, though no two towns are ever the exact counterpart of each other, and so no two towns are strictly comparable. Ilfracombe may, in its way, as Bournemouth is in another way, be said to be the solitary representative of its class.

Until comparatively recently Ilfracombe was hardly more than a quiet fishing village, doing a large coasting and fishing trade, and its growth has been rapid, though not so fast as to destroy its quaint, rural simplicity. Unfortunately it is not easy of access, and one may say that though only 50 miles from Taunton or Exeter, little more than half the difficulties of the journey are surmounted when the traveller alights at Taunton or at St. David's, Exeter. Even from Barnstaple, the North Devon Junction for Ilfracombe, the approach is tedious, and two courses are open to tourists--to go by coach, a delightful fashion of travelling on a bright, warm June or July evening, or by train skirting the coast, and at times getting charming glimpses of the sea and of the steep sides of Lundy. Arrived at the terminus, standing boldly planted on a lofty, artificial embankment the descent into the town is short and rapid. A glance shows that the place is in a transition state ; new houses are springing up everywhere—handsome shops and stately villas with a sprinkling of noble hotels, but there linger vestiges of the old town, and the fishermen lazily sauntering about, rather handsome, picturesque folk as a rule, have the typical Devon features, accent and bearing.

From being planted, as it were, upon the sea, and from having prolongations of rocks known as Capstone Hill—jutting far out into the water, but excellently adapted to be a vantage point to look over the waters, no other place known to me has more to offer in the matter of contrast between a bright, calm sunny day, and one on which the wind and the clouds are having it all their own way. The play of the light on the water is at times exquisite, while on a day when the clouds are rolling up like masses of oil, and when one sharp squall succeeds another with startling rapidity, the effect is equally impressive. Nothing exceeds the beauty of a still sunny day ; nothing the majesty of a day of mingled squall and sunshine, and such contrasts occur at all seasons. A day of uniform heavy cloud is not favourable for seeing the Atlantic : then the dinginess and gloom recall those of a cloudy day in a large inland town, but to get the effects of sunlight and squall the day must be one on which both types of weather have the ascendancy for short seasons, and follow each other in rapid succession. It is the poet's privilege to sketch, in a few words, ideas which the prose writer needs pages to expand and work out, and so I quote the charming lines of the

late Mr. James Manson : the first part describing the ocean in calmness and peacefulness, the second in equally appropriate language reproducing it on one of those days of turmoil and confusion, when to the imagination of northern races the spirits of the night and of the dead are rushing in fierce disorder and conflict over sea and land.

I.

"Summer Ocean, Placid Ocean,
Soft and sweet thy lullaby,
Shadows lightly, sunbeams brightly,
Flicker o'er thee noiselessly.
Resting gently in thy bosom
Snowy sea gulls preen their wings,
While perfumed sighs from many a blossom,
Float around the strain the skylark sings.
Love's emotion ! Summer Ocean,
Like thyself 'neath cloudless skies,
Glances brightly, dances lightly,
Till the fond illusion flies.

II.

Winter Ocean, Furious Ocean,
Fierce and loud thy choral lay ;
Storm clouds soaring,
Whirlwinds roaring,
O'er thy breast in madness play.
Homeless petrels shriek their omen
Harshly 'mid thy billow's roar.
Fleshless bones of shipwrecked seamen
Dash against thy rock-ribbed shore.
War's commotion ! Winter Ocean,
Like thyself when tempest driven.
By passion hurl'd would wreck the world,
And mock the wrath-scowling Heaven."

Charles Kingsley, whose loving pride in his native county has almost passed into a proverb, gave Combe long years ago what he pleasantly called "the puff, honest and true." He spoke of "its quiet nature and its quiet luxury, its rich fairy land and its sea walks, its downs and combes, its kind people, and, if possible, its still kinder climate, which combines the soft warmth of South Devon with the bracing freshness of the Welsh mountains." His brief lines sum up the chief features of the place, and are as true to-day as when first written.

Ilfracombe has only a population of 7,000, though 200,000 excursionists visit it during the season. Lodgings and boarding-houses abound, and accommodation can be got at all prices, and as a rule, living need not be dear. The sick and death-rate is low, indeed, Ilfracombe is said to have an abnormally low death-rate. The visitor can pass weeks thoroughly enjoying his new surroundings, and exploring the neighbouring country, much of which, however, is greatly elevated, bleak and bare, and presents a pronounced contrast

to certain valleys, the home of ferns and flowers in rich and bewilding profusion. One of the most impressive contrasts I have ever seen between verdure, richness and fertility, and bleakness, sterility and bareness, is between the deep, sheltered, leafy, fern-embellished road leading out of Nailsworth, in Gloucestershire, and the same road as it crosses the downs towards Minchinhampton and Cirencester: the commencement all loveliness, variety, warmth and shade, the next part all bleakness, monotony and coldness. I cannot recall any contrast so decided in the neighbourhood of Ilfracombe.

The summer at Combe is cool and at times charming, and when bad weather comes it is well to remember that in other parts of the Kingdom matters are not better, while in winter the sunlight is large in amount, and there is less frost and fog than inland. In that calm, still, cloudy weather, not rare in winter in England, there is commonly at the sea shore sunshine, the higher temperature of the water dispersing the cloudy canopy, or perhaps not permitting it to form. The rainfall of North Devon is heavy, but relieved by long spells of dry summer weather. Will the reader pardon me for inserting a table, without which no article on Combe is complete?

## EXTRACTS FROM MR. MARRIOTT'S TABLES.

| | *Means at 9 a.m.* | | *Temperature.* | | | | | | | *Mean amount of cloud at 9 a.m.* | *Rainfall.* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | *Means.* | | | | *Extremes in year* | | | | | |
| | *Temp.* | *Hum.* | *Min.* | *Max.* | *Range.* | *Mean.* | *Min.* | *Max.* | *Range.* | | *Amount.* | *No. of rainy days.* |
| | | | | | 1882 | | | | | | *Inches.* | |
| Alnwick | 47.4 | 82 | 40.9 | 54.3 | 13.4 | 47.6 | 15.3 | 81.5 | 66.2 | 6.5 | 22.87 | 198 |
| Ilfracombe | 52.2 | 84 | 47.8 | 56.2 | 8.4 | 52.0 | 29 1 | 76.0 | 46.9 | 6.8 | 42.08 | 218 |
| Bournemouth | 50.9 | 84 | 43.8 | 56.5 | 12.7 | 50.2 | 20.0 | 80.0 | 60.0 | 6.0 | — | — |
| TunbridgeWells | 48.9 | 90 | 42.4 | 54.8 | 12.4 | 48.6 | 19 2 | 78.1 | 58.9 | 7.2 | 35.09 | 203 |
| Regent's Park | 49.7 | 81 | 43.3 | 56.9 | 13.6 | 50.1 | 22.5 | 80.0 | 57.5 | — | 27.18 | 169 |
| | | | | | 1883 | | | | | | | |
| Alnwick | 46.6 | 83 | 40.0 | 53.7 | 13.7 | 49.9 | 23.6 | 74.9 | 51.3 | 6.8 | 29.56 | 175 |
| Ilfracombe | 51.4 | 86 | 47.1 | 55.6 | 8.5 | 51.3 | 27.8 | 72.0 | 44.2 | 6.6 | 32.56 | 206 |
| Southbourne | 49.9 | 82 | 43.6 | 55.6 | 12.0 | 49.6 | 23.0 | 77.0 | 54.0 | 5.9 | 27.11 | 171 |
| TunbridgeWells | 44 3 | — | 41.6 | 54.6 | 13.0 | 48.1 | 20.7 | 81.1 | 60.4 | 6.7 | 29.17 | 171 |
| Regent's Park | 49.2 | 80 | 42.8 | 57.0 | 14.2 | 49.9 | 20.0 | 83.0 | 63.0 | — | 23.96 | 169 |
| | | | | | 1884 | | | | | | | |
| Alston | 45.7 | 82 | 36.9 | 51.9 | 15.0 | 44.4 | 14.8 | 81.8 | 67.0 | 7.4 | 47.68 | 235 |
| Ilfracombe | 52.7 | 85 | 48.4 | 56.8 | 8.4 | 52.6 | 32.7 | 83.4 | 50.7 | 6.9 | 31.56 | 186 |
| Southbourne | 51.5 | 81 | 44.5 | 56.4 | 11.9 | 50.5 | 24.3 | 80.2 | 55.9 | 6.0 | 24 71 | 146 |
| TunbridgeWells | 50.0 | 83 | — | — | — | — | 24.7 | 87.4 | 62.7 | 6.8 | 23.42 | 149 |
| Regents' Park | 50.6 | 80 | 44.3 | 58.5 | 14.2 | 51.4 | 25.0 | 91.8 | 66.8 | — | 19.52 | 147 |

To the south-west of the town lie some dangerous and magnificent cliffs, on which shipwrecks have been only too common. The full force of the westerly and north-westerly gales, little felt in a sheltered town or inland valley, but a terror to the sailor on a lee shore, bursts on those cruel rocks, and woe to vessels embayed there. Morte Point is a name of ominous import to fisher-folk. An old and curious proverb has it, "Morte is the place on earth which heaven made last and the devil will take first." Kingsley's charming description is conceived in his best style. "What a chaos of rock ridges—old starved Mother Earth's bare worn rocks and joints peeping out through every field and down, and on three sides of us the sullen thunder of the unseen surge. You see that black rock-awash far out at sea. That is the Morte Stone, the Death Rock, as the Norman christened it of old, and it does not belie its name even now."

Many excursions are practicable, especially if the visitor has a good command of money. One of the greatest charms of having money is that foreign travel becomes possible, while as for seeing our own little island, how easy that is then. It has never been my fortune to be master of an income in any degree sufficing for my frugal wants, and when I have seen the world I have had to compress long journeys in excursion trains, followed by many hours of rapid walking, into a space of time that to most self-indulgent, slow-moving Englishmen would be anything but delightful. Only in this way have I contrived to explore a large part of our tiny island. I can assure the reader that a little money in the long days, if combined with a large expenditure of foot exercise, accomplishes wonders, and even a poor doctor can contrive not to be entirely cut off from those enjoyments, which happier men command as a matter of course. I once managed to start from Ringwood, in Hants, and before my tour ended in Birmingham, had been to Liverpool, New York, Philadelphia and Richmond in Virginia, at a total money cost to myself of £9 9s. 3d., but I must confess that I worked my passage out and back from Liverpool to New York, while I did not spend a penny on horses and carriages during my whole absence from home; what I could not see on foot I did not see at all. If one wants to see the world there is nothing like walking. From 20

to 40 miles can be easily covered in fourteen hours, and a couple of sovereigns will, with the help of tourist tickets, that modern boon to travellers, enable 600 to 800 miles of railway travelling to be managed. It has been by dint of great frugality and untiring energy that I have contrived to traverse Devon from end to end, and explore its lovely woods and hills, and its sea-coast towns, and thus it was that doing a little at one time and a little at another, I managed to get a good knowledge of the neighbourhood of Ilfracombe, seeing Barnstaple, Lynton, Lynmouth, Paracombe, and other pretty though little known places near.

Among the loveliest spots in England is Clovelly, with its well-nigh perpendicular streets; Bideford, with its ancient and noble bridge of twenty-four arches; Westward Ho, Swansea, Lynton, Lynmouth, the Valley of Rocks, Watersmeet and Lundy Island are only a few that give diversity to the holiday. Lundy is so prominent a feature in the scene, and the visitor hears so much about it, that did not space forbid, more than a passing word ought to be devoted to it.

The mildness of Ilfracombe makes it an excellent place for sufferers from bronchitis and other chest complaints, and though the winter-day temperature is not materially higher than that of many other places in the southern half of the island, the absence of severe and long continued night frosts, the prevalence of bright sunshine, and the soft, damp air are soothing, and ward off disease. Something must be allowed for the more active habits generally formed in a new place of residence. Invalids, if they face the expense and trouble of leaving home, are willing to bestir themselves, and get some good from the change; moreover there is a zest in outdoor exercise not experienced in one's ordinary residence. At any rate visitors go out day after day for hours, and sit out on the rocks and benches as they would not do at home, and not only do they do this with perfect impunity, but they get the benefit of fresh and unpolluted air, and are kept from breathing, day after day, the close, hot atmosphere of small, stuffy rooms. This is, I am sure, the correct explanation of the good, which many people get from staying at the seaside; that benefit would not always continue to be marked, for, after a time, the new residence would lose its freshness and interest, but for a brief season everything seems peculiarly beautiful

and charming. So it comes about that Ilfracombe has attractions, in a quiet way, not equalled by many other health resorts at home.

No description of the town would do justice to it that did not dwell upon some of the salient features of the neighbourhood, and of the part it has played in our literature.

Who has not read that quaint but scholarly book, "Lorna Doone," the finest work from the prolific hand of its gifted author, Richard Dodridge Blackmore? The scene of that story is placed by its author, who once lived not far off, in a deep romantic glen on the borders of Exmoor Forest; Glen Doone is within a day's excursion of Ilfracombe. In spite of the constant changes now going on in England, the migration of families and the uptearing of the family tree, one is also greatly struck by the frequency with which the continuity of English life comes down to our times, almost without a break, from remote times. Every reader of "Lorna Doone" has been amused by Farmer Snow and his family, and has laughed at the not unfriendly rivalry among the yeomen of a couple of centuries ago. The Snows still live in the same neighbourhood, and are still respected and opulent, though emphatically denying that they only belong to the yeoman class. Some years ago, for several days, I saw a good deal of some of them, and was interested by listening to the familiar and pleasant accent, and still more characteristic provincialisms, that proclaim the Devon man the whole world over.

The north coast of Devon and Somerset is difficult of access, unfortunately, except at its extremities. The North Devon line passes a good many miles inland on its way from Taunton to Barnstaple, but there are convenient enough stations, and a few long midsummer days are alone needed to penetrate through the forest tract to the channel, seeing all one can desire of Oare, Bagworthy and Glen Doone. The stranger must not expect timber, but a forest in the more exact sense of a vast tract of uncultivated, wild country unenclosed and practically useless except for the chase. There are, nevertheless, on the outskirts of Exmoor, which is in Somerset by the way, some charming spots. Is there anything more picturesque than Dunkery Beacon, and, further off still, the velvety green turf and wooded slopes of the valleys between Tiverton and Bampton? And near Dulverton and around Dunster the country

has an English beauty all its own. To do much, however, a noble disregard of fatigue and long distances must be cultivated, and then take my word for it, few more attractive centres for a long summer holiday can be found than Ilfracombe, the most delightful of the watering-places of North Devon.

S. U. M.

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# DIGESTS OF ELEMENTARY PHYSIOLOGY.

## I. Introductory.

Physiology being the study of the functions and vital processes of organisms, it would appear a preliminary necessity to define approximately the meaning of the word organism. An organism is an organic structure manifesting the phenomena called Life by certain fundamental properties. And Life being admitted as a manifestation of power, the distinction between living and unorganised matter has been defined as, "the difference between the structural arrangement by which force is transformed and manifested anew."

But what are the fundamental properties which manifest the presence of life?

Taking the Amœba, a low organism found in stagnant water, its vital properties are seen to be:—Contractility, irritability, automatism, receptivity, assimilation, metabolism, respiration, and reproduction. Which list of properties expanded into a sentence signifies, that the Amœba is contractile, in virtue of which it is able to execute pseudopodial movements, and to enclose certain foreign bodies which serve for its food; that in consequence of its irritability it will contract if stimulated by external contact, but also possesses a power of contraction independent of external stimuli; that a foreign body received as food becomes a part of the substance of the Amœba; that certain changes take place within the body of the Amœba which result in the ultimate retention of some substances as secretions, and the rejection of others as excretions; that it evolves carbonic acid, and takes in oxygen; and lastly that, if supplied with sufficient nourishment, it subdivides, and each part carries on the functions of the original unit.

Having then an instance of organic life, the question naturally arises how far is this instance typical of the manner in which other and higher organisms perform their functions, and are the above properties always exhibited in the same relative degree. The complex organisms of the higher animals are briefly explained by the one word differentiation, which signifies a change in structure, as well as change in function, brought about by one set of properties being exalted at the expense of others. The tissues of the higher animals can hence be classified according to the maximum appearance in them of certain properties, and the disappearance or minimum appearance, of others. For example, muscular tissue instances the maximum appearance of contractility; and nervous tissue the maximum appearance of irritability and automatism. But the intimate relations existing between the tissues, and the individual functions of the tissues themselves, presuppose some preliminary knowledge of the anatomy of the subject under consideration, and in this case of the anatomy of the human subject.

### *A Brief Elementary Outline of the Anatomy of the Human Subject.*

The three most obvious divisions of the human body are head, trunk, and limbs.

The head contains the brain and the organs of special sense. It is composed of twenty-two bones, of which eight form the skull, and fourteen the facial portion. The trunk, on its dorsal side, is bounded by the vertebral column, which consists originally of thirty-three distinct bones, the upper twenty-four of which usually remain separate ; but the twenty-fifth, twenty-sixth, twenty-seventh, twenty-eighth, and twenty-ninth early unite to form the sacrum, and the latter four run into a bony mass, the coccyx. The Pelvis, or basin-shaped cavity which supports the lower portion of the trunk, is formed by the two innominate, or haunch bones, and the sacrum and coccyx. The ribs form the lateral boundary of the upper portion of the trunk, twelve on each side, seven out of each twelve being attached in front to the sternum or breast bone. The lower five of each pair have no attachment in front.

The Diaphragm is a partition, partly membranous, and partly fleshy, which divides the trunk into two portions, the thorax and

the abdomen. Towards the thorax the diaphragm is convex, towards the abdomen concave.

The Thorax (chest) contains the heart and lungs, several important blood vessels and nerves, and a segment of the alimentary canal, and sympathetic ganglia. The abdomen contains the liver, stomach, intestines, spleen, pancreas, and kidneys ; also blood vessels and nerves. The pelvis contains besides other viscera, the bladder, and part of the intestine. It is freely supplied with nerves and blood vessels,

The limbs are obviously recognised as upper and lower. Each limb of the upper pair contains thirty bones, which are distributed as follows : in the upper arm one, the humerus ; in the lower two, the ulna and radius ; in the wrist eight, called the carpus ; in the palm of the hand five, the metacarpus ; in the fingers fourteen, these latter being termed phalanges. The shoulder is formed of the scapula, or blade bone, and the clavicle, or collar bone. The scapula forms the socket for the humerus. Each lower limb likewise consists of thirty bones, which are as follows : in the upper leg one, the femur or thigh bone ; in the lower leg two, the tibia and fibula. Between the upper and lower leg lies the patella or knee cap. The ankle contains seven bones, the tarsus ; the instep five, the metatarsus ; the toes contain fourteen bones termed phalanges. Ligaments and cartilages bind the bony frame work firmly together, and at the joints, or articulations, where the bones work freely on one another, their surfaces are covered with cartilage, and a lining membrane secrets a lubricating fluid, the synovia. The bones with their attached muscles form systems of levers, which acting one upon another produce the various movements of which the human subject is capable.

An examination of the individual bones of the vertebral column show a bony arch on the dorsal side of each. These arches when in position form a canal for the reception of the spinal cord. A mass of bone is continuous from the vertebral column throughout the skull, dividing it also into two portions, a dorsal or posterior, and a ventral or anterior. The dorsal chamber contains the brain and is continuous with the spinal cord. Thus the ultimate structure of the body, without the limbs, is essentially a double tube, formed

by the spinal column, and bony axis of the skull ; and the great difference between the head and the trunk is due to the relative difference between their ventral as compared to their dorsal cavities.

The external covering of the body consists of two layers, an outer insensible and bloodless one, the epidermis ; and an inner, the dermis, or true skin, which is highly sensitive and abundantly supplied with blood vessels. At the margins of the body these two layers are directly continuous with others of greater delicacy, which line the whole of the internal cavities, and keep themselves moist by exuding a tenacious fluid, called mucus.

With regard to function, the chief organs of circulation are the heart and blood vessels ; those of alimentation, which convert food into nutriment, are the mouth, pharynx, gullet, liver, pancreas, stomach, intestines, and their appendages ; and those of excretion are the lungs, the skin, and the kidneys. But the lungs not only elimimate waste products, they import oxygen into the economy, and are hence organs of respiration as well as of excretion. The oxygen carried into every part of the body by the torrent of the circulation combines with such molecules of the tissues as are disposable into the simpler forms of water, carbonic acid, and urea. The oxidation, or burning, to which this process may be compared, gives rise, under normal circumstances, to sufficient heat to maintain the temperature of the blood.

The brain and spinal cord, together with the sympathetic nervous system, regulate, combine, and keep in harmonious working order the whole complex mechanism which constitutes the human body.

ATHOL M. MEREDITH.

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# FOREIGN HEALTH RESORTS.

## No. 1.—CORSICA.

MR. ERNEST HART, the editor of the *British Medical Journal* (a writer of considerable eminence) a year ago paid a visit to Orotave, in the Canaries, one of the loveliest spots on the face of the earth

according to his account. In some interesting and pleasant letters he described the voyage in terms that made the discomforts of an English winter even more distasteful than before. He left London in the midst of such gloom, cold and misery that proximity to a good fire and an indoor life had a thousandfold greater charms than outdoor exercise, and in a few days he reached the Fortunate Islands of the ancients to find them basking in the warm rays of an unclouded sun; flowers were abundant, outdoor exercise was a delight, and the scenery was all he could wish; while the thermometer ranged from a minimum of 50° F. to a maximum of 65° or 69° F. Nowhere, on the whole, is summer more delightful than in England, nowhere is the grass greener, the foliage more refreshing to the eye, the fruit more grateful to the palate and the temperature more pleasant. But the winter is far different, and though mild enough, as far as thermometrical readings go, the gloom, fog and damp, for many months, make walks and drives the very reverse of agreeable, and brighter, drier cold would, to most people, be much more endurable. In no part of England are matters different or better. The west and south are slightly warmer, in other words have less snow and frost, but the prevalence of rain and wind is a serious drawback to real enjoyment, while in the midland and eastern districts there may be less rain and heavy wind, but there is much fog, cloud and cold. In short in no part of the United Kingdom is winter actually pleasant. While the strong and young feel the discomforts severely, the delicate and aged are much greater sufferers, for the weather, which may only be disagreeable to the vigorous, means disease or actual death to them.

Mr. Hart wished to describe a new winter resort, easily reached, having a charming climate, many of the comforts, and, for the rich, not a few of the luxuries of life; if the Fortunate Islands possess half the delights he claims, he has established his case, and there will be a rush of visitors during the coming winter, indeed, a rush has already begun and accommodation has been difficult to get for love or money.

The drawbacks of a visit to a new and remote winter resort have been the difficult journey, the poor accommodation on arriving at the place, the great expense, and the uncomfortable uncertainty as to whether

the invalid, who cannot laugh at hardships that are to him matters of vital importance, will not find that he would have done better to stay quietly at home, in his warm, well-lighted rooms, in the midst of books, papers and friends. While little reliable and impartial information can be obtained few dare face the risks, and until there is a rush of visitors it is imprudent to build hotels and provide steamship accommodation on a large scale ; so though many of the most charming spots in the world are not very far off, the invalid has to be satisfied with England, or with some place on the South Coast of France where the wants of English Colonists are attended to.

As far as the Fortunate Islands are concerned that stage of progress is reached in which everything which the most fastidious taste can demand has been provided, and climate, house accommodation, English medical attendance, and sea transit leave little to desire. Corsica is also having its claims brought before the world most energetically, chiefly, we believe, by Mr. Bradshaw, of Imperial Buildings, Ludgate Circus. This beautiful Island, the third in size in the Mediterranean, is 115 miles long, and 54 broad : it is 54 miles miles from Italy and 90 from France : its comparatively low latitude and insular position give it a warm winter sun and an absence of severe cold. Corsica has not been a favorite winter resort of Englishmen ; the sea passage from Italy and France has been a barrier greater than a railway journey of ten times the same length ; moreover it has had an evil reputation, the memory of its peculiar local customs still lingering and conveying the unfortunate impression to foreigners that life was rude and dangerous. That state of things appears to have passed away, at least so friends who know the Island tell us, and life is as safe as in England : good roads encircle the Island, and cross roads have been cut from one coast to the other, the steam ship communication is good, rapid and frequent, hotel accommodation, which left much to desire, is being rapidly improved, and at Ajaccio, on the west coast, a great stride has been taken, and before long English visitors cannot fail to go over in considerable numbers. An English medical man is now settled at Ajaccio, and though foreign practitioners are often quite as skilful, courteous and attentive as English ones, it is a comfort to the invalid to tell a countryman his ailments, to receive

directions from him in his familiar mother tongue, and to fancy that there is a greater community of interests between the English doctor and his English client than would be possible with a foreign physician. The reader will find in Dr. Henry Bennet's "Winter and Spring in the Mediterranean," a most charming description of the people and productions of the Island, while Mr. Bradshaw has also published some excellent pamphlets and books that leave little to desire, and, as far as we can judge, are most accurate.

Corsica has grand historical associations: here Seneca passed eight years in discontented exile: here Paoli made his heroic resistance to the French; and here, as all the world knows, Napoleon, the greatest conqueror of all time, was born. In addition to the mildness of climate, the magnificent natural features of the Island delight, or rather, enchant the fortunate visitor. The interior of the Island rises to an elevation of 8,000 or 9,000 feet, and the sides of the central elevated district are cut into by deep ravines, which are described as being marvellously beautiful; their slopes are clothed with lofty forests, their lower levels are resplendent with flowers and the productions of far lower latitudes than ours. The north of the Island has something in common with the South of France, the east is similar to Italy, the west to Spain, and the south to Africa, though taking it as a whole Corsica has distinctly marked African features. The inhabitants are generally courteous, and always interesting and picturesque, the number of excursions that can be managed is great, and though none of the picture galleries of Italy, and none of the superb churches and vast palaces of that peerless land distract the visitor's attention from the rugged natural features of the island, there are the not less interesting beauties of wild majestic nature unspoilt by the hand of man.

Corsica is cooler than many parts of Italy and Spain in summer, but warmer in winter. In January the mean temperature falls little short of that of May in the South of England, the thermometer, however, not falling below 53° F. at 9 p.m., and not exceeding 58° in the middle of the day; the air is calm, the sky cloudless, and the weather nearly perfect. From the beginning of November to the end of March the same conditions obtain—warm, calm, sunny days and mild nights. To leave England for a brighter and more genial

climate is a pleasure that never loses its freshness. The present writer once left Liverpool late in October : he could not complain of the weather in England : it was simply dull, sunless and unattractive, but not particularly cold and wet. Ten days later he landed in a city resplendent with light, the sky deep blue, and nature fresh and living ; this continued without a break day after day. Late in November he landed in Liverpool—the sky was dark and dingy, rain was coming down in torrents, the air was raw and damp, and to take outdoor exercise required a positive effort. On making enquiries he was assured that during his absence, while he had revelled in warmth and sunlight, and had found the evenings the pleasantest part of the day, in England the clouds had had it all their own way. How he would have welcomed the chance of getting back to the sunny land he had left, or of visiting the Canaries or Corsica.

AN OLD OXONIAN.

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## THE ST. JOHN AMBULANCE ASSOCIATION.

By Dr. ALFRED J. H. CRESPI, of Wimborne,
*Honorary Member, Lecturer and Examiner to the Association.*

To prevent rather than merely to relieve suffering should be the primary object of medical practitioners and philanthropists. It is not often that the direct interests of any class are so diametrically opposed to those of the community at large as are those of doctors, publicans, pawnbrokers and policemen. The greater the suffering the better for the doctors ; the more excessive the intemperance the better for brewers and publicans. Now it is one of the best traits in the character of medical men that though no men are more inveterate grumblers, none complain more loudly and with better cause of poor pay and hard work ; none, nevertheless, more generously sacrifice themselve for the public good, and had it not been for their exertions how few hospitals, asylums, and sanitary measures would ever have seen the light. *They* are the men who actually carry on and direct nearly all measures for the prevention and relief of suffering.

Nothing is easier than to prevent disease and suffering. If you doubt this, reflect on the frightful effect of discharging a pistol into the mouth, of drinking a little strong acid or alkali, or of sprinkling the eye with unslacked lime. When the injury is sustained, in too many cases nothing can be done to cure the sufferer: in as many the patient can be relieved but not cured, and life is either ultimately cut short, or drags on its weary length in the midst of suffering and anguish that wring the heart of friends and sadden the medical attendant.

In these days there is much rushing to and fro, and exposure to great risk is far commoner than formerly, though at the same time accidents are less frequent and better attended to. That is in part due to the greater intelligence of the age, in part to the wise forethought which provides means for diminishing suffering.

But the dislike to making public the secrets of any calling is natural, and nowhere more marked than in medicine. Practitioners do not like that the knowledge, which they regard as peculiarly their own, and on which their living depends, should be made common property, and it may be that they often reflect that the halo which invests mystery would be thereby removed. Instead of the public, as they ought to do, looking upon the work of the doctor as peculiarly difficult, and demanding exceptional abilities, there is a tendency to fancy that a few simple rules will carry him along most comfortably. The *one* demand of ambulance pupils is to tell them briefly what to do in certain emergencies. They show actual impatience when the lecturer insists upon laying a solid foundation, and giving that information on which practical work rests, while as a fact not one man in 1,000 would be any the better in a month for a hundred such rules.

It was in Italy, the land that has perhaps done more for the world than any other country, that the first Ambulance Society had its origin. In 1048 some far-seeing merchants of Amalfi, a famous town on the Gulf of Salemo, were deeply affected by the sufferings of the Crusaders, and these generous and devoted men founded what speedily became the world-renowned Order of St. John of Jerusalem, a body of Knights, Priests and Serving Brothers, whose vocation was to be the relief of suffering. Nothing could surpass the heroism of

these noble men : in cold and heat, on the battlefield, and in the fœtid hospital they were ever first and foremost, nursing the sick, and binding up the wounds of the broken-hearted. And with a breadth of feeling that was peculiarly characteristic of Italy there were to be no restrictions as to the condition and nationality of the recipients of their bounty ; so that a man was only in need he was entitled to their help, and they acted up to their glorious motto with unswerving fidelity—*Pro Gloria Dei, Pro Utilitate Hominum.* In this respect the Order has always been Catholic, and sets a noble example to those miserable little cliques, which in some country towns have tried to exclude from ambulance lectures persons who were thought not to be in a sufficiently good position. I am convinced that the present Chief Secretary, Sir Herbert Perrott, would shudder at such perversion of the Association, and would make his voice heard in protests that would be both loud and firm.

The Order fell on evil days, and it has long been shorn of much of the glory and dignity that once invested it. It still survives though, and has many members, who of course are Roman Catholics, and it still has houses in England. But the St. John Ambulance Association is a branch or expansion of the Order, not recognised by the Catholic Order, though connected with what now purports to be the English representative of the once brilliant and powerful English Langue. That Association is doing a magnificent work, and has saved thousands of lives, and prepared over 100,000 people to face even the severest accidents with calmness and knowledge. Its head-quarters is the ancient gate of St. John, the only existing part of the once magnificent Priory, which was the chief house of the Order in England, in those times, when the Prior was the Premier Baron of England. At St. John's Gate, Clerkenwell, Sir Herbert Perrott and his able coadjutors, are always to be found discharging their untiring and harassing duties. There is a chairman, Sir Edmund Lechmere, a chief secretary, an honorary director of stores, Mr. John Furley, and a large body of vice-chairmen and other officials. What is the work of the Association ? Well, it frames rules for the guidance of lecturers, and provides, in return for very moderate charges, all the apparatus and appliances for the first treatment of the injured, for their conveyance to their homes or to hospitals,

for the relief of the apparently drowned, and of the burnt and poisoned : it provides diagrams, bandages, and splints, and it sends out examiners, who report upon the different classes, examine those pupils who wish to have their attainments tested, and gives the successful ones a most tasteful certificate. Of course all this means expense, and while the charges are kept down very low, very moderate fees have to be exacted from pupils to pay working expenses.

The work is generally carried on somewhat in this fashion. Some persons interested in the prevention of suffering and in providing first aid to the wounded decide to get up a local class. They usually borrow or rent a room, go round among their friends and neighbours, get names of pupils, write to the chief secretary, and obtain prospectuses and information. After a time a class is formed : some local doctor is commonly asked to lecture gratuitously. If he is a busy man and not accustomed to public speaking, he generally makes a sad mess of his instruction, probably he flounders along knowing only imperfectly what to teach and how to teach, and his pupils only dimly, after a time, begin to understand what they have to learn, and by the time the course of lectures is over they are only imperfectly prepared for the examination, and still less for emergencies. When all is over an examiner is deputed to go down, and he does his best : sometimes finding the pupils admirably taught and nearly perfect ; at other times totally ignorant. As I have had a good many classes, and have seen much of the work in the past seven years the following is the course I always advise, and it seems to me excellent, and not to need any modification.

In the first place, I strongly urge that there should be a public preliminary meeting, and not, as is so often now the case, a grand final gathering. At that preliminary meeting ladies and gentlemen should be admitted. A good lecturer and speaker, with practical acquaintance with the work, should be invited, and he would convey invaluable information, preparing the pupils for the instruction proper. Then, when the lectures commence, the instructor ought not only to be a good practitioner, but capable of teaching, and well up in the exact work needed by pupils. It must be remembered that the best teaching is that which is directed to preparing pupils to deal

with the emergencies of every-day life, and to showing them how to use for the purpose those things and those only which can be found always at hand. Surgical appliances are never at hand, and could not, if they were, be used by the majority of pupils, but fortunately everything required can be extemporised without any trouble then and there, and this I shall proceed to show.

As a rule, too, it would be far better for classes, in small towns, to have properly trained lecturers—men who know what they are about. In case any one thinks that I am anxious to have more of this gratuitous work, I beg to give warning that I have had half a dozen such classes, and that henceforth I shall not be prepared to give my time, and to pay my own travelling expenses.

The course proper consists of five lectures, and local lecturers sometimes compress the whole work into an hour a time, though two should be the shortest thought of, and as the fifth lecture is occasionally given four weeks to the day after the first, and the examination follows on the next day, the pupils cannot in such a case possibly be well prepared.

The first lecture ought to be public and free, and to both sexes. In that lecture or address, the scope of the work, the basis on which the Society rests, and the needs for that work, should be made thoroughly clear. Two or three weeks later the course proper should commence, and though the instruction does not comprise anything disgusting or objectionable, it is found better to keep the sexes distinct, and to have separate classes for ladies and for gentlemen. Nor is it desirable that the classes should be very large, as the practical work has then a tendency to be imperfectly taught.

I prefer a course of seven lectures, exclusive of the opening or public one. In the first and second, I describe the marvellous mechanism and structure of the skeleton, pointing out its enormous strength, its singular beauty, and its fitness for its work. It is astonishing how much amusing and curious information can be given, and how close is the attention of intelligent pupils, when the lecturer is well up to his work. There is enough to occupy at least an hour and a half lecturing each time, and in the last half hour I point out the uses of the well-known triangular bandage, impressing

upon the pupils that they must regard it simply as a convenient form of handkerchief—the latter being the appliance, which in accidents they would have to use.

In the third lecture I take up injuries to bones, describing the different kinds of fractures, and insisting on the importance of bandaging the injured part carefully. The amount of work to be got through in this lecture is almost too great. I point out that splints are nothing but firm supports to be placed by the side of the injured part ; and that bits of twig, wood, hay bands, brown paper, great coats, grass, book covers and a hundred other matters can be put together, padded and applied without any difficulty, by any ingenious person. Technical details are entirely omitted and wholly unnecessary.

The fourth lecture deals with the control of hæmorrhage; and here I point out that pressure, properly applied, will effectually and infallibly stop all loss of blood, and that for this purpose a bandage has to be passed round the injured part, both above and below, and that a bandage or tourniquet can be made of elastic bands; handkerchiefs, portions of dress, and fifty other things. There is here, too, great scope for information regarding the circulation of the blood and the course of the blood vessels. Nor must the lecturer cease to remind pupils that they are only stop-gaps, pending the arrival of the doctor.

In the next lecture, all forms of suffocation can be taken up, after some remarks on the respiration, and invaluable information can be conveyed. It is like a new revelation to pupils to be told that drowning, hanging, and suffocation from foul gases, are identical in their primary effects, and that the treatment consists in freeing the neck and mouth and setting up artificial respiration. Burns and scalds come in for a little information ; and there is much to tell as to injuries to the eye, and foreign bodies in the ear : about sun-stroke and frost bite, and the first treatment of fainting and of epilepsy. Poisoning is the most strictly technical part of the instruction, and here it is impossible to be popular.

The last lecture is treated differently according to the sex of the pupils. In lecturing to ladies, the elements of nursing are taken up, while men are informed as to the best way of carrying the injured.

Now, although I do not suggest that men should be taught nursing, I have a strong opinion that the removal of the wounded should also be part of the instruction of a female class, for, though ladies may not always be physically competent to carry the wounded they may be called upon to direct the movements of men who are engaged in that work, and who have had no previous instruction as hearers.

The seventh lecture should be recapitulatory, and due emphasis should be laid on the great principles which pupils have to practise. To accustom pupils to think and to apply their knowledge, as well as to prepare them for the examination, I give out altogether five papers of questions, one on each lecture proper, which I urge pupils to go through carefully, and I usually give two examination papers like those though not identical with those which the examiner will set on his arrival.

A week should elapse between the last lecture and the examination, and at the latter pupils are given six or eight simple written questions, and asked a few *vivâ voce* ones, as well as requested to go through some simple bandaging and other operations. No industrious and intelligent pupil should have the smallest difficulty in passing, or need hesitate to go up. The examiners are most kind, and their requirements far from stringent, indeed they rather err on the side of asking too little, and generally show an amount of consideration for the nervousness and imperfect knowledge of the pupils, that, at any rate, saves the latter from unnecessary rejection. When candidates are rejected it is generally from gross incompetence and crass ignorance; and too often the possession of a certificate is not the guarantee that it ought to be. Careful home reading and practising will, however, keep the pupil well abreast of the lectures, and enable him to profit to the full from them.

## UNFERMENTED WINES.

One of the greatest needs of the day is good substitutes for alcoholic beverages, and with the increasing objection in many quarters to intoxicating drinks, it becomes more than ever necessary to prepare *something* that will cheer and please without surfeiting or disgusting.

Many non-alcoholic beverages are too pungent, or sweet, or are actually unpalatable, and they fail to hold their own for any great length of time. The other day a friend assured us that Frank Wright's unfermented wines would satisfy the most exacting requirements, and please the most fastidious palate. These wines we knew perfectly by name, but had never seen them, and up to that time had not, for ten years, met with anyone who had. Accordingly we wrote to Mr. Wright, and received a most courteous reply, cordially inviting us, and promising to shew us everything. Full of pleasant anticipation, off we set for the offices of Messrs. Frank Wright, Mundy and Co., at 37, Merton Road, Kensington. We were received by a most courteous and well-bred gentleman, Mr. Mundy, who gave us a number of particulars, which we found most interesting and which will surprise the reader. He told us that securely corked the wines in question would keep any length of time, that they were absolutely pure, and that great care was needed in preparing them as they did not undergo any fermenting process like that which purifies and improves common alcoholic wines. He added that his firm did a vast business, but chiefly with places of worship, of which they supplied upwards of 3,000 with wine for communion purposes, but that the general demand was small. A suspicion crossed our minds that probably the wine was not palatable, and that there lay the explanation. Perhaps Mr. Mundy noticed our hesitation: at any rate, he courteously sent for some bottles, and we may add, that before we left, we had drunk more wine than in all the rest of our lives before, but we retained the most perfect clearness of head, and could walk with absolute steadiness. From the office we went into the works, which delighted us by their spotless cleanliness, good order, and admirable management. We could see at a glance that the master understood his business thoroughly and had his heart in it, and the cheerful, contented appearance of his workpeople satisfied us as to *their* competence and care.

Omitting minor details this is how things are managed—grapes of the finest quality and nearly ripe are gathered and carefully packed in baskets, which come with as little delay as possible to Merton Road. There the grapes are picked over and thoroughly washed, and then put in large vats, where they are pressed, but not

under great pressure, and the juice flows off. The grape-cheese is next put in a second press, and all the juice is expressed, but the seeds, stalks and skins are not even then bruised. The juice is next put in Winchester bottles and corked, and put away on shelves, where it awaits the final pocesses. When required it is strained and filled into perfectly new and clean wine bottles just up to the bottom of the neck : a minute amount of some harmless antiseptic being added—one part or so in 2,000. These bottles are arranged in caldrons, which are nearly full of water, and pipes containing steam are set to work. Then by carefully watching a thermometer inserted in the neck of one of the bottles the temperature is gently raised to 180° F. The contents expand a little and the bottle becomes nearly full. In due course the bottles are taken out and corked by a cork compresser ; the bottles are now reversed for the cork to soak in the fluid, and put in racks to cool. After a time they are washed, dried, and labelled, wrapped in paper, and packed in cases or barrels. Four kinds of wines are made, besides some to which the antiseptic is not added, and which, therefore, has to be used without delay on opening the bottle, and some delicious *port* wine, unfermented of course, and bark, a capital tonic. "Is that all?" the reader will ask. Yes, that is all, nothing but the pure juice of the grape unfermented, warmed, corked, and with a small addition of an antiseptic, yielding a more wholesome, economical and delicious beverage than any ordinary wine. And what does it cost? Why, a dozen bottles labelled, packed and carriage-paid to any part of the United Kingdom, 28s. or 32s., while the bark wine is 40s. We should have expected to hear of an enormous general demand, and of fifty wine factories doing an enormous business, but there is nothing of the kind.

Mr. Mundy also showed us a department for the preparation of essences—orange, lemon and others ; it was also remarkable for its good order and cleanliness, but that part calls for no special comment. He added that he did not expect unfermented wines ever to get a large general demand. We did not see why, and in our own case we should, we fancy, have pushed the general trade, and not been satisfied with the demand from churches, though in one instance that demand reaches the enormous total of three dozen bottles a month.

Of late some changes have been introduced, and the firm receives large quantities of grape juice in barrels, or rather in enormous casks, from Sicily, Spain, and France, and overtures have recently been made by a Californian grower to supply it. In this case the juice is of better quality, and the fruit is used uninjured, while the expense of packing and forwarding the tender fruit to England is saved, and that must be an important consideration.

The wine is so strong that it can be mixed with advantage, so Mr. Mundy tells us, with an equal amount of water, and in this way, while its flavour is very little affected, it goes double as far. But after all, who can complain of the price, only a quarter that of good fermented wines, and far more grateful to the palate, and a thousand times more wholesome. It ought to be in vast demand for tennis parties, children's gatherings, and, indeed, in the many homes where fermented wine is not now much used. We are sure that were someone to supply us with all the unfermented wine we could get through comfortably in the course of the year he would have rather a heavy account to meet at Mr. Wright's when Christmas came. We can add that we never tasted beverages more delicious and refreshing.

S. U. M.

## NEW REMEDIES.

### PINOL, EUCALYPTIA, AND TEREBENE.

Really we shall most reluctantly have to find serious fault with Burroughs, Wellcome & Co. if they make illness attractive rather than an evil. They are robbing sickness of its worst sting by their palatable and attractive preparations. We have just been arranging a score of their pretty bottles in a row, and as we looked and inhaled the grateful perfume, we were half tempted to try those drugs on ourselves: would not professional rivals have exclaimed that here at last was a real *experimentum in corpore vili?* so we made a strong effort and resisted the temptation. Our readers know that pine preparations have a fragrance and efficacy that almost exhaust the not very scanty vocabulary of the physician. Explain it how we may, these preparations charm the invalid and relieve his sufferings. On this account it is that thousands flock to Bournemouth to inhale

an atmosphere in which pine essence can play only an insignificant part, and get good. Putrefying wounds too are, often with benefit, dressed with ointments and lotions charged with antiseptic compounds, and we can vouch for the value of Eucalyptus in such cases. Burroughs & Co. send out pure Pinol, the essence or volatile oil from the needle-like spikes of the Pinus Pumilio, which is said to possess more valuable medicinal properties than any other pine. It can be taken internally too, as a gargle and in a fumigation, and used as an external application as ointment, liniment or plaster. Terebene and Eucalyptia can be used in all these ways, and they are not less agreeable and efficacious than Pinol. A capital way of taking them is on a lump of sugar in minute and frequently repeated doses, when need arises.

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## KEPLER MALT EXTRACT.

THE finest ripe barley is roughly ground and mashed, and strained and filtered, and then in part evaporated in a vacuum at a moderate temperature. Were evaporation to take place under the ordinary pressure of the air, the extract would have to be raised to a very high temperature, and would be discoloured and in part burnt, but prepared as we have seen it, that difficulty is got over, and a delicious preparation is obtained, invaluable to the invalid and most palatable. The Kepler Solution of Cod Liver Oil and Malt Extract is also sent out, which has all the advantages and none of the disadvantages of most mixtures of these medicinal agents. The amount of Malt Extract prepared by this firm is almost incredibly great, and the figures, most courteously given us, were quite startling.

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## BURROUGHS, WELLCOME & CO.'S TOILET TABLE ACCESSORIES.

AMONG the many elegant preparations of this energetic firm their Lanolin Toilet Soap, Pomade, and Cold Cream deserve special mention for delicacy of aroma and perfection of finish. Lanolin is a Cholesterine fat differing from ordinary fat in containing, instead of glycerine, those beautiful Cholesterine crystals so familiar to every microscopist. The special advantages claimed for compounds of Lanolin are that they can be rubbed into the skin with great ease, and they do not form a thick layer upon it, and when the rubbing is repeated the skin

becomes distinctly softer, nor does Lanolin require to be removed from the skin with soap and water, for it is absorbed by the skin with the greatest ease. This is not fancy on the part of the physician, but a fact, which any one can verify for himself. People who have once used Lanolin agree that it is the best preparation they have ever had the good fortune to get. Lanolin differs from fat and vaseline in its singular affinity for water, the latter remain a sticky layer on the skin and are not pleasant to the feel: the use of Lanolin avoids this. We can speak most confidently of the value of the three preparations we have named, and we hereby announce our intention of using them in preference to all others. The scent of the cold cream is enough to make it a favourite with ladies, and to guard it from all competition.

## WHEELER'S PIXENE.

We have been favoured by Mr. J. Wheeler, Pharmacist, of High Street, Ilfracombe, with a sample of Pixene, a highly concentrated volatile fluid, with the delicious aroma of the fir. This fluid has the strange peculiarity of being freely miscible with water. We watched Mr. Wheeler pour one single drop into 28 fluid ounces of water, and in a few minutes the Pixene had diffused itself through the solution giving it a a cloudy appearance with a strong rather turpentine-like smell. Pixene is an invaluable antiseptic and disinfectant, and when four per cent. of iodoform is added to it, a mixture of great potency and extraordinary surgical value is the result. Pixene is not poisonous and is most useful for cleansing the teeth and washing out the mouth and throat, and some people use it, either diluted or not, according to fancy, on a tooth brush, in the place of the more ordinary tooth powders and washes. By the way, Mr. Wheeler's dispensing establishment is a gem, quite unlike any other we have ever seen: the walls are divided by nine projecting and beautifully painted divisions into seven compartments or recesses. The latter are fitted up with shelves: on the shelves are arranged those drugs, which light and exposure do not injure, while the handsomely painted projecting portions are really the doors of cupboards containing the more powerful drugs, and those that will not bear the action of light. Mr. Wheeler has succeeded in converting his shop into a place remarkable for artistic effect and picturesque arrangement.

# NOXIOUS MANUFACTURES.

## WHITE LEAD.

It has often been a subject of complaint,—sometimes, indeed, not wholly without reason,—that sanitarians, in their anxiety for the public health, omit to take into consideration the necessary financial bearings of the case, so that, if all the suggested restrictions were carried into force, the employer would soon find himself in the Bankruptcy Court, and the workman would have to say, like Othello, that his occupation was gone. Indeed, upon such grounds, it has become almost an accepted fact that some manufactures must always be injurious to health; and, in none did this apparent truism hold good more than in the making of white lead.

But wonder-working Time has deranged all previous notions, and there is now no real reason why the manufacture of white lead should be classified amongst noxious businesses,—provided always, that it be conducted upon the improved system which we have recently had an opportunity of inspecting at the London White Lead Manufacturing Company's premises, situated in the Ossory Road, a street leading from the Old Kent Road down to the Surrey Canal.

The factory covers a considerable extent, and is in excellent working order, as may be judged from the circumstance that the machinery now in daily use is capable of turning out about 30 tons of best white lead every week. With the new machinery in contemplation any additional quantity can be produced.

We need scarcely remind our readers of the fearful effects of working in white lead factories under the old method, "stack" system as it was called, taking its technical appellation from the Dutch. Commissions of the Houses of Parliament have been held, Acts have been passed, stringent regulations have been framed, with a view of minimising this evil, but unfortunately to a comparatively slight degree, as evidenced by the frequent inquests held upon white lead operatives, and by hospital statistics. The mischief arose from the fact that during the whole of the time the workpeople were engaged they were exposed to the fumes, and compelled to breathe

the myriad particles of dust given off during the process of grinding, and otherwise manipulating the white lead in its different stages.

A brief description of the improved manufacture, as conducted at the London White Lead Company's works, will enable our readers to understand how the dangers of the old, defective system are completely obviated. Pig lead is roasted in furnaces to oxide of lead; the latter is next treated with solution of acetate of lead to form an oxyacetate. Chalk is heated in kilns in order to evolve carbonic acid gas, which is pumped into the solution of oxyacetate of lead, causing a deposition of white lead by the combination of the dissolved oxide of lead with the carbonic acid. The liberated solution of acetate of lead is again utilised to dissolve more oxide, which, in its turn, is treated with more carbonic acid; and thus the process is carried on continuously. The separation of the white lead from the solution of the acetate of lead is effected, firstly, by filtration, secondly, by exposing the resulting soft cakes to powerful hydraulic pressure; the pressed cakes are then washed with water. This pure white lead is again caked by filtration and pressure, dried, and ground, and the "dry white lead" (as it is termed) is next mixed with about 7 per cent. of linseed oil, so as to constitute "white lead paste," ready for use in house painting, &c. Practically in this method there is no handling of the products, nor any exposure to the white lead dust so freely given off under the old routine of grinding and pulverising.

This new method presents numerous advantages, not only upon sanitary grounds, but upon economical ones. As much can be done in 36 hours as could formerly be accomplished in double that number of days, and, further, there is no waste. The whole of the pig lead is ultimately brought into the condition of white lead, and the residue of the chalk, after its being burned, to generate carbonic acid gas, is converted into good lime, which has a ready and immediate sale for building purposes.

As to the sanitary benefits conferred by the improved process, we cannot speak sufficiently highly of them. We have never seen healthier looking men in any factory; indeed, some of them, with their fresh complexions and robust figures, reminded us rather of well-to-do agricultural labourers than of artisans. Upon inquiry, we

ascertained that they had, most of them, been engaged for a long period at the Company's works, and that no instance of lead poisoning had ever occurred amongst them.

The old system is as surely doomed as were, too certainly, many of the wretched sufferers employed under it. Taking into regard the quality of the article produced by the new method, the saving of time, labour, and materials, and the immunity of the workpeople from sickness and disease, it is certain that before long none other will be adopted, or even tolerated.

W. A.

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## THE UNIVERSAL FOOD AND COOKERY EXHIBITION.

WHILE our present number is passing through the press, thousands of visitors are thronging this Exhibition at Knightsbridge, where the Duke of Wellington has kindly placed his riding school at the disposal of the Committee of Management. The list of Patrons is very large and influential, while that of Guarantors includes the names of many leading *chefs*, and others capable of exercising all the resources of the culinary art to the utmost. The honorary secretary, Mr. C. H. Senn, is well-known in connection with the supply of rare and valuable articles of food, and the indefatigable manner in which he has worked for some months past has had much to do with making the Exhibition the great success which it is admitted to be.

The building is spacious and admirably adapted to the purposes of the Exhibition, and the tasty arrangement of the stands and exhibits is, of itself, worthy of a visit of inspection. The Exhibition was formally declared open on the 23rd of April, by the Duke of Cambridge, one of the patrons.

The exhibits are divided into nine classes. The first three of these are devoted to what may be rightly termed artistic cookery, and the numerous specimens shown are deserving of the highest praise. Each class is subdivided into sections; class I., comprising section 1, four fish entrées; section 2, four poultry or meat entrées; section 3, four dishes of dressed vegetables; section 4, four savoury entremets;

section 5, four salads; section 6, four sweet entremets; section 7, eight savouries; section 8, four dishes of dressed ices (in model); and section 9, four tureens of fresh made soups and four boats of fresh-made sauce, to be exhibited cold. Here is variety enough to set half of the professional cooks in London on their mettle; and the excellence of their handicraft is apparent in every section.

Class II. is arranged in sections, as under:—1. Supper buffet, to consist of certain stated dishes; 2. Old English cookery, as applied to supper or luncheon dishes; 3. Two grosse pieces (fish, meat, or poultry) and two mayonnaises; 4. Three ornamental and one plain cake; 5. Various made dishes, glacé biscuits, caramel fruit, &c.; 6. Ornamental sugar work in pulled and spun sugar; 7. Ornamental sugar piping; 8. Four ornamental blocks of raised paste, rice, bread, &c.; 9. A completely laid round supper table, including certain dishes; 10. A collection of comestibles and butcher's meat. With the two classes just enumerated the seventh class is associated in the list of awards, containing three sections. 1. A collection of folded table serviettes; 2. A culinary, edible, or decorative novelty of any kind; 3. A collection of culinary literature, and menus.

The principal prizes in classes I., II., and VII., have been awarded to Mr. Benoist, of Wardour Street, the bare list of whose exhibits takes up nearly half a page of the official catalogue; Mr. Armand, of the Burlington Restaurant; Mr. Fiorilio, *chef* at the Victoria Hotel, Charing Cross; Mr. Dalleine, of the Langham Hotel, (all in class II., section 1); Mr. W. Beale, of Holloway Road, class II., section 2, (whose Old English cookery exhibits are particularly attractive); Mr. J. W. Rope, of Hyde Park Place, class II., section 9; Mr. H. A. Jones, class II., section 6; and Mr. Henry Brooks, of Barnstaple, class II., section 7. All of the above-mentioned exhibitors have earned gold medals. Miss E. J. Innes, of Grosvenor Street, has won the chief prize in class II., section 9, in addition to which she is the recipient of the gold medal for women cooks, presented by Baroness Burdett-Coutts. Numerous other competitors in these three classes are the fortunate gainers of silver and bronze medals and diplomas of merit.

Class IV. consists of two sections only, viz.—1, Fancy bread, and 2, Biscuits, cakes, and flour. Class V. again brings us into artistic

design, section 1 : comprising christening or birthday cakes ; 2, Wedding cakes of five and eight guineas value; 3, Bride cakes ; 4, Gum paste stands and ornaments ; and 5, Chocolate or fancy confectionery of any kind. In these two classes there are some very remarkable exhibits, notably those of Mr. Brooks, of Barnstaple, class V., section 1 ; Messrs. Hill & Son, Bishopsgate Street, class IV., section 1 ; Messrs. F. Watt & Son, South Kensington, class V., sections 2 and 3 ; and Peek, Frean & Co., all of whom have qualified for gold medals. A very meritorious exhibit in Class IV. is that of Mr. S. Preston, of Ramsgate, who shows Lentil-Almo bread, biscuits, and cakes. As is implied in the name, the ingredients of which these are composed are, in addition to the usual constituents, lentil flour and oil of sweet almonds to flavour. The Lentil-Almo products are specially nutritious and easy of digestion.

Class VI. is an important one, as will be shewn by the enumeration of its sections. Section 1, meat, poultry, or game, larded, barded, and trussed ready for cooking ; section 2, oysters, shell and smoked fish ; 3, fresh fish of any kind ; 4, meat of any kind ; 5, poultry and game ; 6, fruit and vegetables, early spring, (which, considering the climatic conditions which prevail within a few days of the first of May, sounds almost ironical) ; 7, cheese, butter, eggs, hams, and bacon ; 8, milk and cream ; 9, natural and artificial blocks and designs ; and 10, floral decorations.

Mr. Jubal Webb, of Kensington, takes the premier position in this class, and his ornamental povision stand is one of the most prominent objects in the building. Other exhibitors in this class, who similarly qualify for gold medals are Mr. W. Taylor, of Vigo Street, who shows a splendid collection of poultry of all kinds ; Mr. D. E. Winder, for Whitstable oysters, superior in flavour and quality to any we have ever seen before ; Mrs. Driver, of Glasshouse Street, whose exhibit of native oysters is equally deserving of praise with that just mentioned ; Messrs. Grantham & Co., of Woodstock Street, who display a larder of high class meat of various sorts ; Messrs. Bellamy Brothers, of Jermyn Street, poultry and game ; and Mr. Lusty, Junior, of Stainsby Road, Poplar, whose huge live turtle, placed near to the entrance-door, elicit the constant admiration of the visitors ; Mr. T. K. Bellis, of Jeffrey's Square, is also an exhibitor of

live turtle, and of numerous preparations of turtle,—dried, and preserved in tins, turtle soup in bottles and tins, turtle green fat, and turtle fins preserved whole, all of excellent quality, for which he takes a silver medal. The list of silver medallists in class VI. includes, besides, Dash & Bellamy, of Jermyn Street, for a stand loaded with fresh fish of various kinds, from lordly salmon of such dimensions that poor Mr. Briggs, of undying fame in *Punch*, would have fairly turned and run away had he come across one of these specimens on the occasion of one of his fly-fishing excursions, down to the tiny, but appetising, whitebait ; the Junior Army and Navy Stores, for meat, poultry, and game ; Mr. Martinne, of Old Compton Street, for meat, comprising amongst his exhibits some calves of enormous size ; Messrs. Brooks & Son, of Regent Street, for fruit (amongst it splendid strawberries and grapes as large as plums) and vegetables, making an exhibit which no one could pass without giving it and admiring look ; and Messrs. Francoise & Co., of Regent Street, whose floral decorations, baskets, and bouquets are of special interest. Other winners in Class VI. are the Pure Bred Welsh Dairy Company, High Street, Kensington, for butter ; Mr. C. Ullman, Ryder Street, for native oysters ; and Mr. M. Ullman, of Lower Thames Street, for English and Foreign oysters ; the London and Provincial Dairy Company, for milk and cream ; Mr. Gilling, of King's Road, Chelsea, for oysters and other shell fish, and smoked and cured fish ; Mr. Peter Makovicky, of Rosenberg, Bohemia, for "Lipto" goat's milk cheese ; and Mr. Lefer, of St. James's Square, for various condiments. We noticed in this class a remarkable preparation called "Kef," or effervesing fermented milk, exhibited by Spring & Co., of Blenheim Road, St. John's Wood. Although it was brought into the building too late for competition it is the object of much attention. Its dietetic value and properties have been fully described in this magazine, March number, page 131.

Class IX. is divided into six sections :—1, kitchen utensils ; 2, preserved eatables, or table condiments, in tin, earthenware, or glass ; 3, tea and tea-making, coffee, coffee extracts, cocoa and cocoa essences ; 4, wines, spirits, and liqueurs ; 5, beer, cyder, perry, &c. ; 6, mineral waters. This class comprises in the second section a most excellent exhibit of hygienic and Astrachan caviare, *patés de foie*

*gras*, and other comestibles shown by Mr. C. H. Senn, of Vauxhall Bridge Road, but, owing to his official position as honorary secretary, this exhibition is marked "not for competition." Had it been, its superior character would doubtless have enabled Mr. Senn to add another high-class medal to the large number with which his stand is decorated. The first prize in class IX. goes to Messrs. Van Houten & Co., for cocoa. Other gold medallists are, Mr. Edmunds, of Stonefield Terrace, N., for his admirable currie preparations, chutney and chutney sauce, essences used for culinary purposes, &c.; Messrs. Lyle & Co., Old Bond Street, for teas and coffees; Messrs. Gaymer & Son, of Banham, for Norfolk cider, a most excellent beverage; Messrs. Morel & Co., of Piccadilly, for liqueurs and comestibles; Mr. Schmidt, of Wickrathberg, Germany, for coffee; and the Pure Water Company, for mineral waters. Other high prize holders in this class are Mr. Raeber, of Switzerland, for Swiss Alpine bitters; Mr. Glatti, for French and Rhenish wines; Mr. Johnston, of Farringdon Street, for Bovril, or fluid beef; Messrs. Poulton & Noel, for ox tongues, galantines, brawn, &c.; Messrs. Gruber & Co., of Strasbourg, Bock ale; Messrs. Dewar & Sons, and Messrs. Hudson & Page, for whiskies, the latter firm also showing some very good champagne; Messrs. Jones, for kitchen utensils; Messrs. Radford, of Bakewell, for their sauce, which requires only to be known to be appreciated; and the Khoosh Bitters Company. We propose to deal with other important exhibits in this and other classes in another article.

We must not omit to mention that each day excellent lectures on different branches of cookery are delivered by first class authorities, including Mons. Poiard, caterer to the Queen's Guard; Miss Agnes Kelmar; and Miss Marion Smithard. The band of the Grenadier Guards plays repeatedly during the day.

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AGRICULTURAL LOSSES.—We hear a great deal about the hard times upon which British farmers have fallen. Perhaps the following statistics of imports from France and Italy during twelve months may assist our readers to understand the extent (and in some degree the reason) of British agricultural losses:—Eggs, 1,035,171,000; onions, 3,632,587 bushels; butter, £8,141,438 worth; cheese, £3,871,359 worth; and poultry to the value of £639,704. If we cannot grow corn enough for our teeming population, we could surely keep more cows and poultry, and cultivate vegetables.

# NOTES AND NEWS.

## FAIR QUESTIONS.

Lady with the shining hair,
  Holding all the charms and graces,
Stately, kind, and passing fair,
  Could you wash the children's faces?

When the rosy morning bright
  Paints with gold each roof and spire,
Banishing the shades of night,
  Could you start the kitchen fire?

O'er the fields with thee I wander,
  Summer's glory overhead,
Charmed, I all thy virtues ponder—
  But could—ah, could you make good bread?

Eyes so deeply, truly tender,
  Clear as water in a pool,
Answer my heart's importuning—
  Have you been to cooking school?

—*Helen M. Winslow.*

*
* *

TASTING BY PROXY.—Shortly before Passion Week, a fashionable lady at the West End, who contrived to make a curious mixture of piety and wordliness, observed to a friend of similar character,—"We must, however, mortify ourselves *a little.*" "Well, my dear," was the reply, "let us make our servants fast."

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* *

ANCIENT AND MODERN CUSTOMS.—In the household book of the Northumberland family for 1515, we are informed that a thousand pounds was the sum annually expended in housekeeping; this maintained 166 persons, and wheat was then 5s. 8d. per quarter. The family rose at six in the morning; and my lord and my lady had set on their table for breakfast, at seven o'clock, a quart of beer, a quart of wine, two pieces of salt-fish, half a dozen of red herrings, four white ones, and a dish of sprats. They dined at ten, and supped at four in the afternoon. The gates were all shut at nine, and no further ingress or egress was permitted. But now,

"The gentleman, who dines the latest,
Is, in our streets, esteemed the greatest;
But, surely, greater than them all,
Is he who never dines at all."

PUBLISHERS' NOTICE.—DIET AND HYGIENE will be Published on the 1st of each month, and Advertisements should be sent in before the 23rd of the preceding month to insure insertion.

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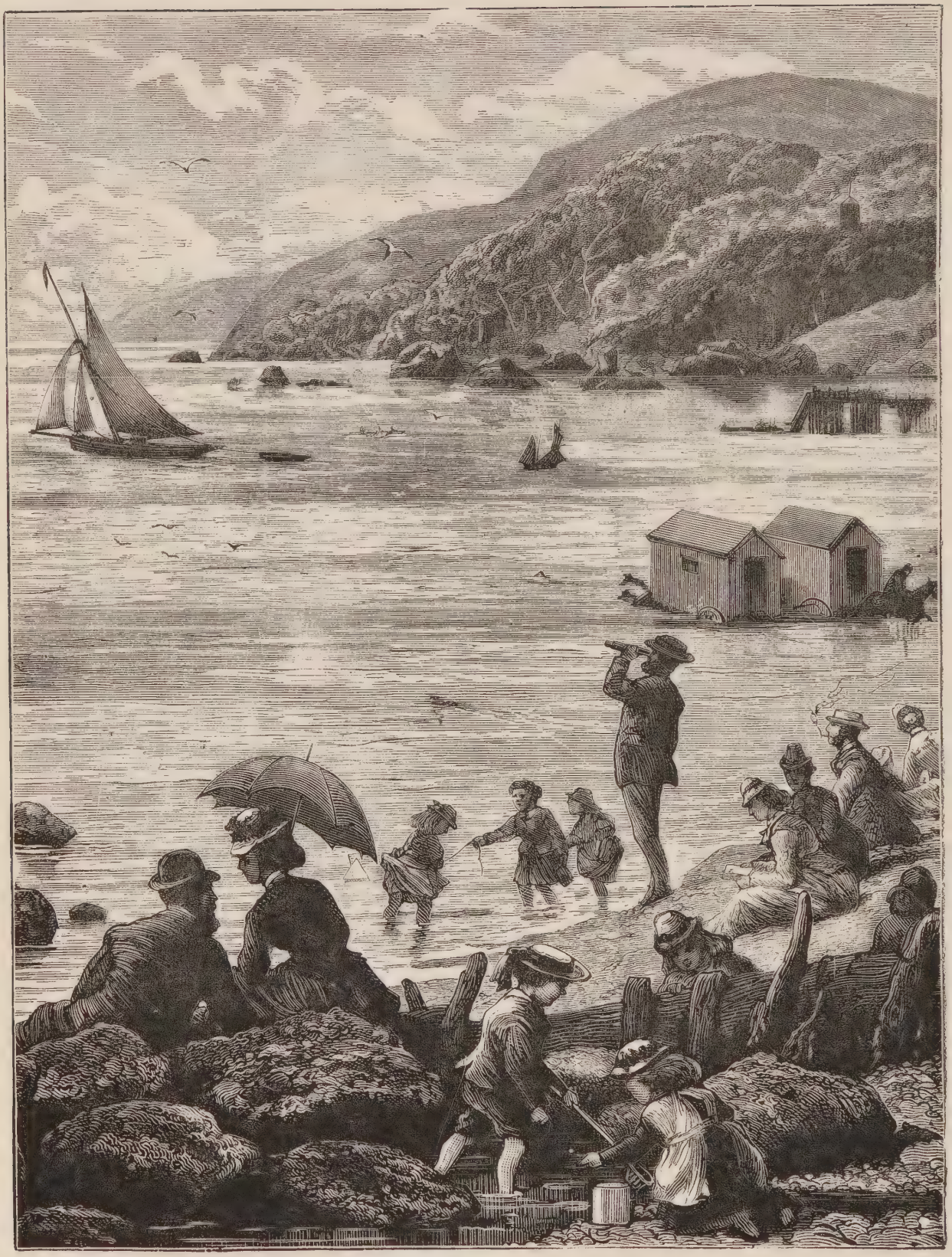

# Diet and Hygiene:

A MONTHLY MAGAZINE

OF

FOOD, DIETETICS, & HEALTH.

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## SEA BATHING.

By W. ABBOTTS, M.D.,
Author of the *Sea Bathing Guide.*

AT this season of the year, when hundreds of thousands of persons commence to make preparations for the summer exodus from inland cities and towns to the seaside—the "great annual wash," as an American humorist has pithily designated this coastward migration,—some observations upon the subject of Sea Bathing will not be deemed ill-timed.

From the earliest periods of the history of medicine, physicians have been in the custom of extolling change of air, or of climate, and bathing of different kinds, as the most powerful natural agencies in the cure of disease. Hippocrates, one of the oldest medical authors whose works have come down to us, wrote a treatise specially describing the remedial effects of air, water, and climate, which is not without value even at the present day, and numerous other ancient writers, both Greek and Roman, pointed out the advantages to be derived from the change of air, combined with bathing.

Those inhabitants of Imperial Rome whose means allowed of such enjoyment, passed some portion of the year at the pleasant places of resort situated upon the shores of the Mediterranean, in order to renovate their vital powers, impaired by close application to study

or business, or by habits of luxury ; and a sea voyage or a temporary marine residence was regarded by Celsus and other Roman physicians as a valuable adjunct to other treatment in many affections resulting from debility and want of tone in the system.

In more recent times the practice of visiting the seaside for purposes of recreation and of health has become a habit. One might parody the words of the poet and say—

> " Thousands bathe now, who never bathed before,
> While those who always bathed, now bathe the more ; "

for there are few persons of sufficient means who do not annually avail themselves of railway facilities to run off to the seaside, returning in better health and spirits for their daily duties. The commencement of this practice may be said to date back only to the second half of the last century, when Cowper mildly satirised it, in the following lines, having reference to summer social habits :—

> " And all, impatient of dry land, agree
> With one consent to rush into the sea."

There are two classes of persons for whom such a change of climate as is involved in a visit to the seaside is especially indicated.

One, by far the larger, class consists of those who suffer from no marked disease, but whose health has been tried or weakened by the impure atmosphere of large towns, by excessive mental work, by close application to business, or by some other deteriorating influences. The other class includes invalids suffering from some defined disease, which medicine, unaided by other remedial measures, has failed to remove ; so that the advantages derivable from a pure atmosphere, different to that in which the patient has been living, are requisite before a complete recovery can be obtained.

Fortunately for the community it happens that the facilities for reaching the seaside are now so numerous, and at the same time so inexpensive, as compared with what they were before the introduction of railways, that it is within the power of most persons to visit the seaside, to inhale its uncontaminated atmosphere, and to plunge into the health-giving waves, with pleasure and with benefit to their constitutions. Like the fabled hero of mythological fame, Antœus, who derived fresh vigour for the combat every time he was thrown down and touched the earth, many a man with his physical condition

impaired by hard work, mental strain, or illness, gathers fresh strength and vitality on each occasion when he comes in contact with the ever-rushing waves.

But there are certain disadvantages which sometimes arise out of the greatly increased facilities for visiting the seaside.

Formerly, when the means of communication with the coast were comparatively few and practically unavailable for the masses, persons in whose power it was to undertake the journey did not set out upon it without previous deliberation as to the locality which they should visit, having due regard to the probable effect upon their health, and frequently taking the opinion of their medical adviser before coming to a decision.

Now, the chief questions which are considered before making the summer or autumn trip are those of time and personal convenience; so that "Bradshaw" and "A.B.C." are consulted instead of the physician, and any wavering doubts as to the most eligible locality as a health-resort are at once dispelled on ascertaining that it can be reached in two hours and a half, while the journey to some other place would occupy six or more hours.

Of course, there are many who, without having heard of the name of Celsus (a Roman writer on medicine,) unconsciously use the same expression as that with which he commences his treatise on the maintenance of health, viz., that "a man of sound constitution, who is in good health, and is his own master, ought to bind himself by no rules;"* but, on the other hand, there are many to whom the choice of a watering-place during their annual holiday is a matter of paramount importance, seeing that upon its judiciousness depend their health and, to a greater or less extent, the comparative efficiency and comfort with which they will discharge their daily duties during the subsequent twelve months.

Take, again, the case of a family composed principally of children. It is very desirable to ascertain beforehand whether the place to which it is proposed to go, suits their requirements. How often does it not happen that, through ignorance of the local peculiarities of a seaside resort, parents take children where the beach is entirely

* *Sanus homo, qui et bene valet, et suæ spontis est, nullis obligare se legibus debet.*"—Celsus, Book I., Sect. 1.

W. B. Gardner

composed of hard shingle, unpleasant to walk upon, and destructive alike to children's clothes and their attendants' tempers, or where the prevailing feature happens to be tall cliffs, difficult to surmount, instead of to other places where the beach consists of smooth, firm sand, inviting and agreeable to the youngsters to play about on, with the sea breezes blowing full upon them ; or, perhaps, they go to busy large towns, where the throngs of bustling people render quiet enjoyment and retirement impossible.

Before making a final choice, therefore, it is important that due regard should be had to one's existing state of health, the time of the year, the prevalent weather, and the sanitary and other local conditions of the different places under consideration.

The number of health resorts on the coast is now so great that it seems likely at first sight to embarrass any one wishing to make a choice. For many practical purposes, however, they may be divided into three districts, according to the part of the coast upon which they are situated, viz.—Eastern, Southern, and Western, and next into minor districts.

The Eastern district includes all resorts between the Tweed and the Thames ; the Southern extends from Margate to Penzance, comprising the whole of the coast facing the English Channel ; while the Western district embraces the long extent of English and Welsh Coast from the extremity of Cornwall (the Land's End) to Solway Firth.

These districts admit of sub-division into minor districts, viz.:— North-Eastern, from Berwick-on-Tweed to the Humber ; the Eastern, proper, including the watering-places of Lincolnshire, Norfolk, Suffolk, and Essex ; the South-Eastern, comprising the resorts in Kent and part of Sussex ; the Southern, proper, those from Beachy Head to Penzance, the Isle of Wight, and the Channel Islands ; the South-Western, extending from the Land's End up to the Severn ; the Western, proper, which takes in all the health resorts on the Welsh Coast to the Great Orme's Head ; and the North-Western, which includes all from the last-named point to the Solway Firth, and the Isle of Man.

The principal watering-places in the North-Eastern district from Berwick to the Humber, (looking towards the German Ocean,)

are :—Berwick-upon-Tweed, Blyth, Newbiggin, and Tynemouth, in Northumberland ; Roker-by-the-Sea, in Durham ; and Bridlington, Filey, Hornsea, Marske, Redcar, Saltburn, Scarborough, Whitby, and Withernsea, in Yorkshire.

The resorts in the Eastern district, also fronting the German Ocean, are :—Cleethorpes, and Skegness, in Lincolnshire ; Cromer, Hunstanton, and Yarmouth, in Norfolk ; Aldeburgh (or Aldborough,) Felixstowe, and Lowestoft, in Suffolk ; Clacton-on-Sea, Dovercourt, Harwich, Southend, and Walton-on-the-Naze, in Essex.

The South-Eastern comprises the following places, most of them situated upon the English Channel :—Birchington, Broadstairs, Deal, Dover, Folkestone, Herne Bay, Hythe, Margate, Ramsgate, Sandgate, Walmer, Westgate-on-Sea, and Whitstable, in Kent ; Eastbourne, Hastings, and St. Leonards, in Sussex.

The watering-places, in the Southern district, proper, extending from Beachy Head to the Land's End, and facing the English Channel, are :—Brighton, Kingston-on-Sea, Lancing, Littlehampton, Newhaven, Seaford, Shoreham, and Worthing, in Sussex ; Bournemouth, Hayling, Lee-on-the-Solent, and Southsea, in Hampshire ; Charmouth, Lyme Regis, and Weymouth, in Dorsetshire ; Budleigh Salterton, Dawlish, Exmouth, Paignton, Salcombe, Sidmouth, Teignmouth, and Torquay, in Devonshire ; Falmouth, and Penzance, in Cornwall. The Isle of Wight (Cowes, Ryde, Sandown, Shanklin, and Ventnor being the principal places,) and the Islands of Jersey and Guernsey, situated in the English Channel, between England and France—nearer, however, to the latter than to the former—are also included in this section.

Between the Land's End and the River Severn (South-Western district,) and fronting the Atlantic, are :—Marazion, New Quay, and St. Ives, in Cornwall ; Ilfracombe, Lynmouth, and Westward Ho, in North Devon ; further up, and on the British Channel, Burnham, Clevedon, Portishead, and Weston-super-Mare, in Somerset.

The Western section, entirely in Wales, includes, on the British Channel, the Mumbles and Southerdown, Glamorganshire ; Ferryside, in Carmarthenshire ; Broadhaven, Milford, and Tenby, in Pembrokeshire, fronting the Atlantic and St. George's Channel ; Aberayron, Aberystwith, Borth, and Newquay, in Cardiganshire ; Barmouth, in Merionethshire.

The resorts in the North-Western district, situated on the Irish Sea, are :—Colwyn Bay, Llandudno, and Llandulas, in Carnarvonshire ; Abergele and Pensarn, in Denbighshire ; Rhyl, Flintshire ; Blackpool, Fleetwood, Lytham, Morecambe, St. Ann's-on-Sea, and Southport, in Lancashire ; New Brighton, in Cheshire ; Allonby, in Cumberland. The Isle of Man (chief towns, Douglas and Ramsay,) being situated in the Irish Sea, about 70 miles from the main-land, may also be included in this group.

Speaking generally, the best period for visiting the North-Eastern and Eastern coasts is from the middle of June to the end of September.

The South-Eastern watering-places are most frequented between the months of May and October.

The health resorts in the most Southern section, being some degrees warmer, are not so agreeable in the hottest season of the year as those on the East, South-East, and West Coasts, nor are they so suitable for children, or for persons whose constitutions require bracing up ; in fact, many of them are too relaxing during the months of July and August, for most people.

The places in the South-Western and Western divisions have a cooler atmosphere than those in the Southern, while owing to the warmer character of the prevalent winds, blowing from a westerly quarter, their climate is more genial in the early summer and latter part of the autumn than that of towns situated on the East coast. Their season consequently begins sooner and ends later than that of most of the resorts on the East coast, although some of these,—notably Lowestoft, Felixstowe, and Clacton,—enjoy a considerable amount of mild weather, even at the worst seasons of the year, when the wind is not blowing from the East.

The North-Western coast is most agreeable during June, July, August, and September.

It must be understood that the foregoing remarks have a general application only. Local circumstances, such as the presence or absence of high cliffs, affording shelter from certain winds, differences of soil, or the proximity of wide, open mouths of rivers, must materially tend to modify the climate of any place, and thus affect the duration of the period at which it would be preferable for visitors to frequent them.

I would observe here that there is no greater mistake than that made by many who, though well able to afford the money and time, never think of going to the coast except at that period of the year when it is the custom to frequent seaside health resorts,—during the limited "season," in fact. As a matter of course, at this limited period, house accommodation is more difficult to procure, other items of expenditure are higher than ordinary, and the crowd of visitors is such as to seriously incommode invalids and persons needing quiet and repose. It would be an excellent thing if people would more generally appreciate the advantages of an occasional visit to the seaside, especially in the earlier part of the year. Much illness would be averted, and a large stock of physical and mental vigour would be stored up by such a trip, the expense of which would probably not exceed one-third of what the same holiday would cost in the so-called "season." It frequently happens that the weather is clear, fine, and genial at various places on the coast in the months of February, March, and April; although foggy weather with all its unwholesome and uncomfortable concomitants may be prevalent in the metropolis. Of course, bathing in the open sea could not be indulged in during these months, but numerous other health-producing factors exist for all who choose to take outdoor exercise, to breathe pure air, and to enjoy Nature, often at her best in Spring.

Having finally decided where to go, and having arrived at the place of destination, the next important question is the selection of a desirable residence during the stay there.

In all cases, but particularly if the party comprises invalids or children, it is advisable that the lodgings should be within a short distance of, and easy of access to, the beach, so that the maximum benefit of the marine breezes may be obtained at a minimum degree of exertion or fatigue. Not unfrequently, from some motive of mistaken economy, heads of families take up their abode upon the outskirts of a watering-place, a mile or even more, away from the sea. The result is that, during the greater part of every twenty-four hours, the family is breathing an atmosphere presenting but little difference from than of the inland home from which they have come, perhaps at considerable trouble and expense, to obtain the benefit of

sea-air ; while their visits to the beach are either of a hurried character, just to have a bath, or else are prolonged to such an inconsiderate length, because of the difficulty of getting to the sands, that the over-fatigued children can scarcely drag themselves back to their lodgings again. It would be better not to go to the coast at all than to fall into such an error as to engage a temporary residence at a distance from the beach for the simple reason that the terms are lower than those charged closer to it. Such mistaken economy is, indeed, "penny wise and pound foolish," for it only results in getting very little real benefit in return for a large amount of time, trouble, and money expended on the visit.

Great care should be taken, too, to avoid small or overcrowded lodging-houses. Many people, on their arrival at a watering-place, are at great pains to quarter themselves in a fashionable part of the town, looking out upon some promenade, which, throughout the day, is thronged by others who, like themselves, have come, not merely to the sea, but to *see* and be seen ; and rather than be disappointed in this respect, they will make shift with ill-ventilated, stifling rooms, such as they would scorn to use at home. And then, on rising in the morning, with headaches, or, on finding themselves a prey to various nervous or dyspeptic symptoms, they blame the sea-air, of which they have not had a sufficiency, as always producing headache or indigestion in their cases.

The first thing that visitors generally think of, as soon as they have settled in lodgings, and, in fact, sometimes before that, is bathing in the sea. It is astonishing how much some people contrive to accomplish in this respect. An amusing story illustrative of the injudicious eagerness which is occasionally shown in resorting to sea-bathing, is told of a Leicestershire farmer, who having been recommended by his medical adviser to take a course of sea-baths, and to drink sea-water, went to a watering-place on the East coast, where he bathed eighteen times in five days, and swallowed during the same short period more salt water than it was intended he should take in a whole month. Although many of our readers will smile at this anecdote, as an evidence of the extreme to which people will sometimes carry matters, it will perhaps not be altogether amiss for them to regulate their own action with regard to sea-bathing.

The beneficial effects derived from bathing in the open sea are due to two principal circumstances, namely, the saline composition of the sea-water, and the shock which is produced both by the waves and the low temperature of the water, seldom exceeding 67° Fahrenheit.

Notwithstanding the fact that the sea absorbs a greater portion of the sun's rays than the land does, while the heat sinks deeper into it, its temperature is lower than that of the land in summer; in winter it is somewhat higher. To this tendency which the ocean has to preserve the same mean annual temperature, and to its communicating this condition to the surrounding atmosphere, may be attributed the property that the sea has of moderating the bitter cold of winter and the burning heat of summer; so that, as a rule, the climate of a place situated on the coast, is more equable, taking the year throughout, than that of an inland locality would be.

The shock which is produced at the surface of the body by the agencies just mentioned is speedily communicated to the whole system, and respiration is spasmodically increased in consequence of the blood being suddenly diverted from the external parts of the body to the lungs, as well as to the heart and other internal organs. The healthy body possesses, however, a ready power of re-action, the natural result of which is that the effects which are primarily produced soon disappear, and the blood returns with increased force to the capillary vessels of the skin, in which the circulation is considerably heightened, thus giving rise to the agreeable sensation of warmth that is felt by most bathers after a few minutes' immersion.

The results of judicious sea-bathing in suitable cases are, therefore, the stimulation of the numerous sensitive nerves of the skin, whence the impression is conveyed to the brain and spinal cord, and afterwards, through the medium of the nervous system, to every organ in the body. We thus get increased circulation, improved nutrition, and a better tone of the system, generally; the action of the skin is heightened, respiration is more actively carried on, and the liver and other organs are roused into a state of greater efficiency.

But, on the other hand, if bathing in the open sea be employed in unsuitable cases, or resorted to too frequently, or if the bather should remain for too long a space of time in the water, we find a

corresponding series of injurious effects. The body becomes lowered in temperature, the stage of re-action is replaced by one of depression, and, instead of increased arterial activity, there is diminished force of circulation, and various local congestions occur internally, as is evidenced by torpid liver, imperfect digestion, throbbing headache, feverishness, languor, and similar symptoms.

Bathing in the sea is contra-indicated for old people, for very young children (especially before the first dentition has been completed,) for persons of full habit of body, for those whose circulation is weak or irregular, or who are suffering from heart disease, chronic chest affections, disorders of the brain or nervous system, or local accumulations of blood, such as hœmorrhage from the nose, lungs, &c.

Persons who are not in robust health will find it best to bathe in the sea every other day only, or to miss a day occasionally ; but those who are of strong constitution and in perfect health can bathe daily. Of course, we are speaking here with reference to the bathing season, when immersion in the open sea is both agreeable and beneficial.

It is advisable in most cases, but particularly as regards persons in only moderate health, to allow the first day or two after the arrival at the coast to pass over before commencing to bathe. Those who are of a somewhat delicate constitution would find it desirable to have some tepid salt water baths, particularly shower-baths, gradually reducing the temperature, prior to beginning to bathe in the open sea.

Some people have a great dread of "catching cold" (as it is termed) through sea-bathing, but there need be no real grounds for this apprehension, if the rules laid down here are followed.

The most suitable time for bathing is about an hour or two before a meal, when the food taken at the previous meal will have become partially digested, instead of the stomach being full, as would be the case soon after eating.

If, for the sake of convenience, or on account of the time of the tide, persons bathe very early in the morning, before breakfast, it is advisable that they should have some light refreshment—such as a cup of cocoa, coffee, or tea, or a glass of milk, with some bread and butter, or a few biscuits, previous to taking their bath.

On no account whatever should sea-bathing be had recourse to after a heavy meal or very vigorous exercise, or when a person is much heated from any cause, or, on the contrary, feels chilly.

Many people make the mistake of bathing at a very early hour, in order to leave the rest of the day free for other matters, but it would be far better if they would wait until the water had become warmer by the action of the sun. As a rule, when the tide and other circumstances serve, it is best to bathe between 10 a.m. and 2 p.m.

The duration of the time in which any one should remain in the water necessarily varies according to the age, sex, and constitutional strength of the bather. Regard should also be had as to the state of the weather and season of the year, aud to the size and force of the waves, which vary considerably in different localities, according to the direction of the wind, the state of the weather, &c. In the case of children, five, gradually extended to fifteen minutes; of women, ten to twenty minutes; and of men, fifteen minutes or more, is a fair average time for remaining in the sea, unless the water is very warm. When persons are in the habit of bathing regularly, these times may be exceeded in warm weather.

When young children have not bathed in the sea previously, great care should be used not to frighten them, and not to convey any unfavourable impressions; some relative or acquaintance should accompany them into the water, and pains should be taken to induce them to enjoy their bath. The common practice of forcing children into the water, and roughly pushing them under the waves, because they are nervous and timid, is as senseless as it is cruel. Numerous instances could be cited of adults who have had an unconquerable antipathy to sea-bathing, the only reason for which is the deeply rooted feeling of dislike which had been brought on by unnecessarily harsh treatment when, as children, they essayed bathing in the sea.

There are, doubtless, some people to whom the periods we have mentioned will appear insufficient, and who will insist on remaining so long in the water that their bodies become cold, their teeth begin to chatter, and a condition of general exhaustion comes on,—people, in short, who want to "have the most for money," like the

countryman who grumbled at having been conveyed thirty miles in about half an hour by an express train, on the ground that the length of time occupied in the journey was not commensurate with the fare which he had paid.

On entering the water the bather should immediately immerse the body and head twice or thrice, so as to get the action from the shock of the water promptly distributed over the entire surface. There should be no hesitancy, no dabbling about with the feet, but a good plunge into the next wave that rushes up. This last direction applies chiefly to non-swimmers. Should the bather be able to swim, he or she, (this graceful accomplishment is exceedingly useful to both sexes,) will know what to do, and will not care to remain in 24in. to 36in. of water. If the bather should be unable to swim, the best advice we can offer is that which we once heard given to a Londoner by an old "salt" lounging about the sands at Ramsgate: "If you can't swim, don't be foolish and get out of your depth, with the idea of gauging the English Channel, but make haste to learn."

Upon coming out of the water, the bather should dry the body briskly with good, rough towels, (taking care to provide his own, and not to trust to the limp, pocket-handkerchief-sized things generally supplied by the bathing attendants,) dress quickly, and have a sharp walk for a short distance. If there be any feeling of exhaustion or nervous depression, a little food or drink should be taken; a tumblerful of good milk is an excellent thing for this purpose, with or without the addition of sherry, brandy, or whiskey.

Many persons complain, after bathing, of noises and other unpleasant sensations in the head and ears, amounting, in some instances, to temporary deafness. The reason of this annoying condition is that it is almost impossible to thoroughly remove all of the water which has entered and lodged in the external passage of the ear; consequently, that which remains evaporates, and thus leads to chilliness of the lining membrane, with occasional inflammation, and excessive secretion of wax in the ear. This subject is so important that we must treat of it in a separate article, which will be found in another part of our present number; but it will be satisfactory to our readers for us to state here that the liability

to this disagreeable consequence of sea-bathing can be readily obviated by the simple precaution of placing a small piece of oiled wool in the ears, so as to exclude the water. Bathing caps, which are sometimes worn, do not afford sufficient protection ; these are not used so much as formerly, nor are they requisite. In the case of a healthy person, there is no risk of catching cold, or of injuring the hair, provided the head is well rubbed with a dry towel after bathing, and then properly combed and brushed.

Sea-bathing is a most powerful tonic, both for persons in average health, and for those who are suffering from physical debility or from mental overwork. It is also an extremely valuable adjunct to medical treatment in many diseases. It is unnecessary, in a general article, to enter at any great length into a detailed account of the affections in which sea-bathing is followed by happy results, but they may be briefly touched upon.

Foremost, we must place scrofula, in its numerous forms, for of all the ills which human nature is subjected to none is more amenable to the natural remedies met with at the seaside than this affection is. Under the influence of good, bracing air, combined with bathing, the constitutional taint is removed, and children who, had they remained in an impure town atmosphere, would most probably have died prematurely, or have dragged out a miserable life of disease, often grow up healthy and strong, after residence at the coast.

Scrofula may be defined as a general constitutional malady, evidenced by frequent local symptoms, and showing a decided tendency to concentrate its force upon certain parts of the body, according to the patient's age ; the various functions are disturbed, and more or less debility is present. The forms in which scrofula chiefly manifests itself are,—that scourge of the human race, consumption, inflammation and accompanying enlargement of different glands, mesenteric disease, in which the body is gradually wasted, owing to the obstruction which the inflamed mesenteric glands offer to the passage of products of nutrition into the general circulation, water on the brain, *(hydrocephalus,)* rickets, spinal curvature and other affections of the bones. In addition to these disorders a large number of disorders are maintained in a chronic form by the

co-existence of scrofula—amongst them whooping-cough, croup, ophthalmia, glandular abscesses, and many forms of skin disease.

When commencing a course of sea-water bathing for any scrofulous patient, it will be advisable at first to use salt water baths, at the patient's own residence, warmed to a temperature not lower than 90°. As the patient gradually gains strength and becomes accustomed to the salt water, the temperature may be reduced by degrees until open sea-bathing can be advantageously resorted to. In cases where the local symptoms predominate, such as weakness of the joints, and relaxation and wasting of the muscles, great benefit will be derived from the employment of salt water douche baths.

In no disease are the advantages of a marine residence more strongly evidenced than in consumption, to which and kindred affections may be assigned the large proportion of one-sixth of the whole mortality of Great Britain, chiefly numbering in its long list of victims the young, the intelligent, and the beautiful. From the earliest periods of medical science sea-air and sea-voyages have been recommended in the treatment of consumption. Aretœus, a Greek physician, who lived more than four hundred years before the Christian era, wrote highly of them; and, if we turn to modern authors, we find them unanimous upon the subject. In the standard work of Laennec, who did more than any other writer to elucidate the previously doubtful points connected with consumption, it is stated that "the sea coast, especially in mild and temperate climates, is indisputably the situation where the greatest number of consumptive patients have been known to recover." Again, the same author says elsewhere, "I am certain that, in the present state of science, we have no better measures with which to combat consumption than sea-voyages, or a residence on the coast, in a mild climate." Dr. Verhaage, in a paper published in the *Edinburgh Medical Journal*, has demonstrated from the results of his investigations at Ostend, contrasted with those of other observers in inland towns, that Laennec's opinion as to the comparative rarity of consumption at the sea coast was correct. The tables of statistics which accompany Dr. Verhaage's paper give a proportion of seven deaths from consumption amongst persons residing inland to two deaths from the

same cause amongst dwellers at the coast, taking equal numbers of the population into account.

The periods of the year at which consumptive persons derive most benefit from living at the sea-side are the summer, when a place with a bracing air is indicated, and the autumn and winter, when a locality sheltered by high cliffs or hills from injurious winds should be selected. Spring is the most treacherous season of the year at the coast for consumptive patients, so that it is important during the months of February, March, and April that they should reside, if at the seaside, in houses which are protected from the cold winds.

Next to consumption and other affections of a scrofulous nature may be ranked nervous debility, disorders of the liver, indigestion, and general debility, as certain to improve under the influence of sea-air and sea-bathing.

In cases where immersion in the open sea is inadmissible, warm salt water baths are of great value, as well as for the purpose of preparing persons in delicate health for sea-bathing; in the latter instance, the temperature being gradually lowered until open sea-bathing can be safely resorted to. The proper temperature for a warm bath is from 90° to 100° Fahrenheit, and that for a tepid bath from 75° to 90°.

Douche baths of salt water (warm or otherwise, according to the requirements of the case,) used locally, are very useful as a powerful means of stimulation in chronic rheumatism, and other affections of the joints and limbs. It is, however, essential that this plan of treatment should not be employed without medical sanction being previously obtained.

There is one thing that cannot be passed over in writing upon Sea-Bathing, namely, exercise, concerning which we may sum up all in the second line of the quotation :—

> "Health is the vital principle of bliss,
> And exercise of health."

For a person to visit the coast with the idea of deriving benefit from sea-bathing alone would be to ignore certain health factors which exist nowhere else to greater advantage. He should avail himself of every opportunity for exercise in the open air during fine weather, not omitting an occasional excursion in a sailing boat,

a mode of exercise insufficiently appreciated, if not, indeed, somewhat feared by the majority of people who go to the seaside.

Those who are unable, by reason of illness or infirmity, to take active exercise, will have their health improved by being placed in the open air, and inhaling the marine breezes. The sea-air possesses certain properties which do not exist in an inland atmosphere, and the iodine and bromine which it contains, either in a free state, or in chemical combination, the ozone, and the saline particles, derived from the ocean itself by evaporation, all assist in communicating to the sea-air health-giving qualities of a most valuable character, and conducing, in a marked degree, to the recovery of invalids who are brought under the sanative influence of such a pure and wholesome atmosphere.

Ozone is a peculiar modification of oxygen, produced by electrical action, and is more abundant near the ocean than in inland localities. It possesses remarkable purifying and vitalising powers. Dr. C. B. Fox, in his treatise on Ozone, mentions, as special agents in the simultaneous development of ozone and electricity, the evaporation which is constantly proceeding from saline sources, such as oceans and seas, and "the dashing and splashing, the smashing and crashing, of the restless waves on the rocky shore." Such being the case, it is not difficult to understand why ozone exists in greater proportion in a marine atmosphere than anywhere else.

Bromine and iodine are two chemical elements always present in sea-water, sea-weed, and sea-air, either in a free condition, or in combination with other chemical elements; the second of these, iodine, is very abundant in many species of sea-weed, to which it gives the peculiar odour. Both bromine and iodine possess marked remedial properties, especially in diseases of a scrofulous character.

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TESTING MILK.—A very simple and ingenious method of testing whether milk has been adulterated with water has been announced by a German scientist, who says it will detect the presence of the smallest quantity of the objectionable "Simpson." The plan recommended is to place the milk in a deep vessel, and, procuring a highly-polished knitting needle, to insert it vertically in the doubtful fluid. The needle must then be steadily withdrawn, and if a drop remains at the end, then the milk is pure. If, on the other hand, the drop is not found, it may be safely concluded the milk has been adulterated. This is certainly a very simple, and it is said to be a reliable, test.

## SACCHARINE.

We have every reason to believe that before long many invaluable adjuncts to human food will be built up in the chemist's laboratory, in any quantity desired. There is a vast difference between analysing a food, and building it up from its foundations ; and while everyone knew that the scientific chemist, not the druggist by the way, could take to pieces nearly every food in use, and ascertain with the greatest nicety its component parts, it was not generally known that it was becoming possible to take the different constituents, bring them together, and manufacture in the laboratory something indistinguishable from the finished product of nature's own preparation. The triumphs of analytical chemistry were complete before those of synthetical chemistry had filled the untiring student of science with hope ; in the latter department the greatest and most brilliant advance seems awaiting him. Is it hazarding too much to prophesy that, judging from what has been done, remembering that in science the goal of yesterday is reached to-day and left far behind to-morrow, it will be possible and easy, even in our own day, to manufacture in large quantities and at small cost, many of those foods that have become necessaries of life ? There is hardly any limit to what chemistry will yet accomplish, and a young man of genius and indomitable steadiness of purpose, wanting a field vast enough for his energies and the longest life, could find none comparable with chemical science. Labour cannot be wasted there. A man may immortalise himself by thoroughly examining what others have thrown away, and nothing is so commonplace and familiar, that a careful examination of it may not lead to great discoveries, pregnant with wonders. Every year unfamiliar plants are being brought to England, and fresh fruits and vegetable products made known, and it requires no deep knowledge of what has been done, and of what is taking place to justify the assertion, that before another century has passed, chemistry will enrich the world with products that for usefulness, potency and cheapness, will surpass nearly everything now within the reach and at the command of man.

The chemist has long possessed agents whose strength fills the mind with astonishment : for instance, one grain of the ammoniacal

hypo-sulphite of silver makes 32,000 grains of water intensely sweet, while one grain of strychnine imparts a bitter taste to one pint of water. But the sweetening properties of this silver salt were a scientific fact of little value in practice. Some years ago, however, Dr. Fahlberg, after eight years' incessant labour, succeeded in converting saccharine, a singular derivative of coal-tar, and quite unconnected with the above mentioned silver salt, from a laboratory curiosity into a commercial product, and Sir Henry Roscoe, one of the most competent judges in the world, did not go too far when he called saccharine "the most remarkable of all the marvellous products of the coal-tar industry." Saccharine is arresting the attention of medical men, and according to medical writers, always rather sanguine, will be invaluable in covering the nauseous and loathsome taste of some of those powerful medicines with which science has enriched the Pharmacopœia, and which, although useful beyond all expectation, are sometimes most unpalatable, or, indeed, like Cascara Sagrada, so nauseous that many sufferers rather bear the ills they know than face the still more unpleasant ill of being half poisoned by the evil-smelling and disgusting remedy. I shall not attempt to describe the steps of the manufacture of saccharine, nor perplex myself and alarm my reader by half a page of chemical symbols, which another advance in chemistry may supersede. Suffice it to say that saccharine, or benzoyl sulphonic imide, is a white, amorphous powder, which, when examined under the microscope, is seen to present a distinct crystalline appearance. It is intensely sweet, although when put on the tongue in its pure form, is not so overpoweringly so as one would expect from descriptions. This is disappointing; but the discoverer stated at Manchester, at the British Association gathering there last September, that the very intensity of the sweetness occasioned so overpowering an action on the nerves of taste that it deadened them, in the same fashion as too powerful a light dazzles rather than assists vision. Saccharine must be regarded as an essence, which, to be of practical use, must be intelligently diluted, and in this respect it is analogous to vanillin, another of the recently discovered derivatives of coal-tar, rapidly superseding the once familiar natural vegetable product, vanilla, as a flavouring material.

Cold water takes up very little saccharine ; and in water of the temperature of 120° Fahr., it is only moderately soluble; while even boiling water does not completely dissolve it. But when the fluid is neutralised by the addition of carbonate of soda or carbonate of potash, its solubility is greatly increased. When saccharine is added to a solution of carbonate of potash or of carbonate of soda, carbonic acid is given off, and a compound of soda or potash salts with saccharine is formed. These salts are nearly as sweet as saccharine, and as they readily dissolve, are far more convenient. Saccharine is now generally supplied in tabloids, that is to say, a minute quantity is subjected to tremendous pressure, and a millet seed-like body results—firm, dry and easily carried about in a bottle in the pocket. One tabloid is equivalent to a lump of white sugar. In a week one would get used to saccharine, and not miss the more familiar, though hardly more palatable, cane or beet-root sugar. Messrs. Burroughs, Wellcome and Co., of Snow Hill Buildings, London, supply convenient bottles of excellent tabloids, and it was with this preparation that I conducted some researches.

Alcohol, which dissolves so many substances on which water hardly acts, dissolves saccharine. Before long, I cannot help fancying, that the manufacturer of pure unadulterated sweet summer drinks, cordials, and liqueurs, will include it in his armoury. Mosso has carefully investigated the subject, and finds that one gallon of ten per cent. alcohol dissolves 378.7 grains of saccharine ; one gallon of 40 per cent. alcohol takes up 1391.6 grains ; one of 80 per cent. holds 2250.5 ; while absolute alcohol only suspends 2118.9 grains. An 80 per cent. mixture of alcohol and water takes up the largest amount of saccharine ; it is curious that the strongest solvent, as one might suppose, often answers worse than a weaker form. Saccharine is abundantly soluble in warm glycerine. At 224° Fahr. saccharine fuses, and is partially decomposed, giving off a characteristic odour. Professor Stutzer, of Bonn, says that one grain of saccharine distinctly sweetens 70,000 grains of pure distilled water.

Saccharine is not a fermentable sugar, and is rapidly coming into common use in the treatment of many diseases, and will be invaluable in cases in which the palate craves for sweets, but in which cane sugar cannot be permitted without danger. Still more, to exalt the

merits of saccharine, Aduco, Mosso, Stutzer, and Stadelman assert that it is an antiseptic, and it is asserted not to have any action on ptyalin, diastase, and the digestive functions of the human economy, and to pass unchanged through the system.

Why, the reader will inquire, have I mentioned saccharine here: has it any bearing on dietetic matters? On that point I am not sure, but think that it may have, and in this way. Many people, though I am not one of them, dislike syrupy drinks, and prefer beverages that are thinner and less mawkish, as they style them. Saccharine, though it sweetens, has none of the thickness and stickiness of syrups. Could not drinks be prepared retaining the rich fruity flavour of the raspberry, the strawberry, the cherry, and many more, which could be preserved in air-tight bottles, much as Frank Wright and Co. put up Unfermented Wine? Then in due course people to whom cane sugar is unpleasant could pour a little of the fluid into a tumbler of water and add one or more saccharine tabloids. That is a problem I should like to offer fruit essence makers to solve.

Mr. C. H. Wicks, of Bristol, in a good-humoured paper in *Science Gossip* for May disputes the position I have here maintained, and denies the value of saccharine for practical purposes: first on the ground of its enormous expense, second on that of its not possessing the nutritive properties of cane and beetroot sugars. No doubt these objections have much in them, but is there not a chance that saccharine may, before long, fall in price as improved methods of manufacture are introduced, and again, as it is primarily a flavouring or sweetening agent, it is not necessary that it should possess great nutritive qualities. A third objection—that saccharine has a distinctive taste, presumably disagreeable, is not to my mind tenable, for the flavour of saccharine is not unpleasant, and I do not feel sure that a cup of cocoa sweetened with it would strike a person, not aware of that fact, as being at all different from one to which cane sugar had been added.

AN OLD OXONIAN.

# OUR VILE BODIES.

By reason of the imperfect translation of a word in Scripture, we are wont to abuse our "vile bodies," as it pleases many to call them. It may be thought by some highly spiritual to attempt the exaltation of our souls at the expense of our bodies; but, then, this would seem to imply that, whilst God made the soul, the devil created the body of man. The natural tendency, since the Fall, of both body and soul, has been to vileness, but the body is not of necessity, viler than the soul.

In spite of St. Stylites and other saints, of the dirty and carefully self-neglected order, it is quite certain that clean bodies conduce to clean souls. It has even been remarked by a very practical authority, that the civilisation of a state may be measured by the amount of soap which it consumes.

The Jews have a sanitary code, alleged to be direct from God, including details of personal cleanliness, wholesome food, and the separation of the sick from the healthy. The Mohammedan gives much consideration to ablution, and to the preparation of food. But the Christian, with the idea of baptism, or washing, theoretically pervading every article of his faith, not unfrequently neglects his "vile body," as he calls it, almost despising any intelligent or practical knowledge of its functions, or of the desirability of washing or proper feeding.

The warm bath is considered by many in this country as a luxury, and not as a necessity. Until of late years, the warm bath was a matter of impossibility with the greater part of our population, and is to an enormous extent even now. Many of the millions who use soap and water do not know how to wash themselves, or when and why they are clean. Many of those to whom education and means give the opportunity of an acquaintance with the laws of health, do not know anything of the structure or the requirements of their bodies. Any necessities which may arise must, consequently, be referred to a medical practitioner, whose office is, in the main, to cure disease after the ignorance or neglect of preventive precautions has injured the frame.

Take, again, the case of our food. It is entrusted to servants who, through our own faulty teaching, rarely possess the information

how to cook it economically, or, sometimes, even wholesomely. We utterly ignore that knowledge by which alone the structure of the body can be healthfully built up; and mistresses are too apt to regard servants, in the present day, as if they required no training, but would grow, like Topsy in *Uncle Tom's Cabin*, ready-made.

We are beginning to teach our children physical science, but it is that which explains the constitution of the skies, or of the bowels of the earth. We explain to them mechanical construction and motion, and the conditions necessary for preserving these, but of the anatomy of the human frame, of the causes of our own movements, the conditions of air, food, and clothing, inseparable from healthy existence, we convey to them never a word.

A man who would embark in a profession or trade without some technical acquaintance with its requirements, would be properly regarded as a fool. One who would attempt to steer a boat containing his children across the ocean without some knowledge of seamanship, or who would attempt to drive them by railway without some knowledge of engineering, would be called a murderer or a madman. Yet men marry, and bring up families after this reckless fashion. They assume the responsibilities of providing for and directing human life, in total ignorance as to the fitness of their marital unions, or the functions of their own bodies, or those of their children, on whom they will too often visit the consequence of the father's sin,—be it ignorance, or be it neglect,—to many generations, in deteriorated organisation, or in premature death.

Prevention is better than cure; but it is more. It is a paramount duty. If the knowledge of the cure of disease is an absolute necessity, and forms a most responsible occupation for a very large body of men, surely the knowledge which lessens that necessity must be of the highest value. The prosperity of a nation depends greatly upon its bodily health.

Physiology is as essential a part of the teaching at our schools as is divinity. It is no more difficult to teach a child a catechism of physiology than it is to teach it one of religion. It is easier to teach a child by demonstration than by faith; and physiology is one of the demonstrable sciences.

By those who do not take into consideration how much of human

life is wasted by preventible disease and death, it is sometimes said that, without any knowledge of physiology, families are reared in health and vigour. "Providence tempers the wind to the shorn lamb," and children may live who, according to the laws of Nature, ought to have died. But the tempering is frequently death, which relieves the innocent from pain, and which inflicts a direct judgment, in the shape of pecuniary loss, on the shepherd who has neglected his charge. It is to be feared that proverbs of this kind are hugged comfortably to the heart as apologies for ignorance or neglect of duty; whilst the direct application of the judgment is too often lost sight of in a text for a homily on the inscrutability of the ways of Providence.

The time has gone by when it was thought that physical science was opposed to religion. The health of our bodies is a matter of consideration, similarly to the health of our souls. We must therefore teach the laws relating to the former, not only in our schools, but in our homes and amongst our poor.

An increase of population augments the difficulties of preserving the national health; but an increase of population betokens prosperity: and prosperity implies an increased responsibility in our duty towards our fellow-men.

M.P.

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## THE BANANA AND THE CACAO.

The banana belongs to the genus *Musa*, and is one of the most important fruits produced in tropical countries. The plantain, which is largely used as an article of food by the people of Central America, tropical Africa, and equinoctial Asia, is cultivated with ease wherever the mean temperature of the year exceeds 75° F. It is very nutritious, and the quantity of land which will supply two persons with wheat will furnish plantains to satisfy the demands of fifty persons. Its leaves are used for thatching, and from the fruit is made an intoxicating beverage much liked by the natives.

The banana is called the *Musa Paradisiaca*, and is a variety of the plantain, being smaller and more delicately flavoured. It is so called by botanists from an old notion that it was the forbidden

fruit of the Scriptures ; and fanciful writers have supposed it to be the fruit brought by the spies of Moses from the Promised Land—one bunch being carried between the two on a pole.

The soil of Costa Rica is peculiarly adapted to the cultivation of bananas, and the entire extent of the country from Limon to Carrillo, on both sides the railroad—some seventy miles—is given up to this culture. The bananas of Costa Rica are the finest imported into the United States. One of the chief merits of the bananas of this country is their superior hardness, the fruit always arriving in a perfect state of preservation in spite of the time required for its transportation ; only within the last year or two some of the finest fruit on being re-shipped from New York to London bringing 27 shillings per bunch.

The banana industry is organized on so perfect a basis that little trouble is experienced even in the shipment of the immense quantities sent from this port. Several days before the arrival at Limon of the fruiters, a cablegram is received notifying planters along the railroad. The railway company then put on extra trains ; the inspectors prepare for their task, and the Jamaica negroes and peons come ready to cut down the trees with their sharp machete—a knife or sword always worn by the natives and used for every imaginable purpose. Although the steamers engaged in this trade are of the largest size, they are always provided with sufficient freight at Limon, so enormously has the industry developed during the past few years.

The fruit business at present supplies the railway with the greater portion of its freight ; and as the road is being rapidly extended and new areas being cultivated, the tonnage of the railroad company is constantly on the increase.

The first step in laying out a banana plantation is clearing the land. Holes about six inches deep are then made in the ground, generally at a distance of ten or twenty feet apart. The suckers, which are small shoots from the roots of the old trees, are then planted. In about ten or twelve months the tree attains a height of fourteen to twenty feet ; on the top of which, apparently a prolongation of the trunk itself, hangs the heavy bunch of fruit destined to line the purse of the planter with bright dollars, and by its golden coloring to gratify the eyes of the lover of luscious fruit.

The tree has a diameter of eight or nine inches, and is peculiarly soft and watery. The fruit is gathered a few days before shipment, and is never allowed to ripen on the tree when intended for transportation. It is the duty of each train inspector to guard against the shipment of over or under ripe fruit. The Costa Rica bananas which ripen off the trees are as delicately flavored as the bunches destined for home consumption and allowed to attain full maturity on the parent stem.

To obtain the fruit, the tree which produces only one bunch for the first crop is cut down. The second year increases the number of trees, as from each root spring several shoots, of which only five or six are allowed to grow. In a few years, if the land is rich enough to stand the drain upon it, the yield is enormous. While some plantations show no deterioration in the size or quality of the fruit, others, at the end of four or five years, fall off in the size of their bunches, and prove the necessity of applying some fertilizer—an article hitherto unused ; the cut trees are left on the ground, and as they decay rapidly, act as a kind of fertilizer.

Five hundred or more bunches can be obtained from each manzana —about 200 bunches to the acre. The profits must seem enormous, when one reflects that some plantations return a net gain of from 60 to 80 per cent. per annum on the original cost. Others do not pay so well, but when attended to at all, it is certainly one of the most profitable crops known.

Some planters provide against the exhaustion of the soil by setting out other trees between the bananas, so that when a rotation of crops is necessary, they will have another of cacao, or whatever else they may have planted.

Around Matma the cacao tree has been in cultivation many years, and the soil of Costa Rica is well adapted to the production of this valuable article.

When the Spaniards invaded Mexico they found that the natives indulged in a most delicious beverage, of which they themselves were ignorant. Tradition tells us that the Emperor Montezuma drank chocolate flavoured with vanilla from a golden cup. It is fortunate for us moderns that the cacao tree is now largely cultivated throughout Spanish America, and that in Costa Rica it is properly

prepared. In a short time there is no reason to doubt that chocolate will form an important article of export along with the tropical fruits for which the country is already famous.

The cacao or theobroma must have been the nectar of the gods —theos, a god ; broma, a fruit—fruit for the gods, by a natural deduction. One can hardly doubt that when they assembled in solemn conclave on high Olympus the loving cup, passed from one to the other, was filled to the brim with foaming chocolate. From being cultivated only in Mexico, its native country, cacao is now grown in nearly all the Spanish American States as well as in the West India Islands.

Cocoa and chocolate are both prepared from the seeds of the cacao. The pods containing the seeds are gathered when ripe, and having lain for a day and night are opened, and the seeds, extracted by hand, are submitted to the sweating process. They are placed in baskets, laid on sloping floors, in order that the chief part of the pulp may drain off ; after this they are shut up in a close box for twenty-four or forty-eight hours, and are then laid in the sun to dry. When quite dry, the seeds are packed in bags for shipment. Chocolate is prepared by grinding the cocoa-nibs in a mill consisting of stone or metal rollers, heated by charcoal fires or steam, for the purpose of softening the natural fat. The warm smooth paste which issues from the mill is incorporated with sugar and flavoured with vanilla—becoming the chocolate of trade. The Costa Ricans, although they fail in making a good cup of coffee or tea, succeed admirably in preparing chocolate, of which they drink great quantities. Mixed with parched corn and served cold, it makes a most refreshing drink.

The cacao tree grows to a height of twenty feet, and has a hard trunk. In about six years it arrives at maturity, lasts well, and produces largely.

C. R. S.

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PISCICULTURE.—The propagation of coarse fish continues to be carried out on a large scale at the Midland Counties Fish Culture Establishment. Mr. William Burgess has laid down many millions of perch, carp, roach, and dace ova, and the fry are being transferred to the ponds as fast as they become incubated.

# BRITISH HEALTH RESORTS.

## No. 6.—BUXTON AND THE PEAK.

The Peak Country deserves everything that has been said about it —grass so green that on the hottest and driest day it looks as though all the greenness, which had deserted other parts of the land, had taken refuge here, timber of surpassing verdure and size, shade so dense that not even the foliage near Plymouth offers anything more remarkable, hills usually fertile and well cultivated to the summit, graceful rivers flowing rapidly along, making pleasant music as they go, and valleys which, when the sun shines upon them, look like a bit of Paradise. Eliza Cook did justice to this loveliness in a few musical lines :—

> "I was bound like a child by some magical story,
> Forgetting the South and Ionian vales,
> And felt that dear England had temples of glory
> Where any might worship in Derbyshire Dales."

Could one only count on three months of warm sunny weather, few would care to seek other lands, and the Dales of Derbyshire would be crowded with visitors. Fortunately perhaps for the lover of seclusion and repose, our English climate drives many away to regions where the sun has real power and shines with a persistency that we can hardly conceive.

To the south of Derby, at any rate as far as Birmingham, the country is not remarkable—rather flat, not heavily timbered, and though well cultivated, not tempting to any but fugitives from the crowded alleys of smoky towns, to whom any bit of green, any retired lane, is a pleasure. At Derby matters don't mend much, and though there are some pretty walks near, there is a good deal of smoke, and the place is rather dingy, though clean and prosperous. Directly the town is passed, the country becomes undulating, trees increase in size and number, the railway cuttings become deeper, and the character of the scenery improves, and by the time we reach Ambergate, the junction for Sheffield, we are in the midst of woods, hills, and dales, that prepare us for the beauties awaiting us farther north. On then to Matlock, and getting out there, and crossing the Derwent, along the principal street of that most charming

of watering-places, to our left the richly-wooded heights, to our right the irregularly-built but picturesque houses of Derwent Parade.

My childhood was passed among people who often mentioned Buxton and Matlock, and I had learnt to associate these familiar names with some of the most beautiful scenes of nature. Fortune, however, did not permit me to pay a visit to them until nearly three years ago. The weather in the district in which I live had long been dry, and for weeks we had had dust that would have been a credit to California : hedges, trees, grass, and gardens were fading, and the wells had long run out, when one day, late in August—the 26th it was—I got out at Derby, and next morning at breakfast-time ran on to Matlock and Buxton. The former was just awaking, and I had it pretty much to myself. The rain was descending in sheets : such was my first visit. The wonderful verdure filled me with amazement, and the impression made on my mind has never been effaced, though I have seen Matlock five times since. Indeed, I fancy that the first time we see a place the impression is of a character and a vividness that no subsequent visit ever adds to or greatly corrects.

On through Matlock—to Cromford, where the rocks become in places precipitous, rising 200 and 300 feet in almost perpendicular elevation. Cromford itself is a dreary little place, with a couple of hundred rather neglected-looking houses, a small unpretending church, and only one object of great interest, Willersley Castle, the residence of the Arkwrights. If the road to the right through Cromford is followed, Wirksworth is reached in an hour, but it hardly offers anything of interest : the church, often the one building of size and beauty in an Old English market-town, calls for no remark, while the streets, though in places broad, and offering a marked contrast to the extreme narrowness of some of the older carriage ways, make little impression. A friend of mine, now gone to join the majority, was Head Master of the Grammar School, and from him I heard much of the glories of Wirksworth ; but my visit there, after my friend's removal to Sheffield, hardly came up to my expectation. But near Cromford there is a walk which for beauty, picturesqueness, and variety, is certain to make a deep impression—

the Via Gellia, a pretty and retired valley, half a mile or more in length, winding along at the foot of two vast ridges of rocks. The road was cut at the expense of Mr. Phillip Gell, of Hopton, and has a certain far-a-way resemblance to the Cheddar Cliffs, though while the latter are loftier and more stupendous at their commencement, they lack the fertility and beauty of the Via Gellia. From Matlock Bath a pretty road leads to Matlock Bridge, or the visitor may continue his journey by train, skirting the river, and passing through some tunnels cut under the hills. From here to Miller's Dale the scenery is of the most exquisite character, and in bright sunshine, the peeps along the valleys are, in their way, unlike anything I have ever seen elsewhere. All the way to Miller's Dale, the junction for Buxton, one passes places of interest—Darley Dale, Bakewell, Rowsley, Chatsworth, and Haddon Hall, while Tideswell Church is of noble proportions and easily reached.

The country rises gradually, and the hills assume a character which tells of thinner soil and greater elevation; but all the same the loveliness of the scenery continues. From Miller's Dale to Buxton the distance is about five miles, and at intervals one sees stupendous masses of precipitous rocks, that would make the fortune of any other part of the country in attracting visitors, but in the Peak district, where all is beautiful, and deep valleys and lofty ridges meet the eye at every turn, no one thinks much of them. Arrived at Buxton, the terminus of the branch, the visitor is struck by the departure from the usual custom. Towns, in times when shelter was important from the scarcity of fuel, and the bad workmanship of the houses, were commonly in deep sheltered localities, and it was not till population increased and the conveniences of life became commoner and greater, that building extended up the slopes of the hills. But at Buxton there are two towns ; the one, in a deep valley, beautifully sheltered, richly wooded, and admirably built, is perfectly new, the other, of greater antiquity and less pretension, is on a lofty bluff, freely exposed to wind, and not verdant with trees. The new town shows many signs of wealth and of large numbers of visitors : its shops are handsome and well filled with goods of excellent quality, and the streets are crowded with people evidently not without leisure and ample means.

It is difficult to describe Buxton. It is 33 miles north of Derby and 900 feet above sea level, which in our latitude is a great elevation, and more completely affects the character of the vegetation than would four times that elevation in the south of Europe. The approach to the town is by a ravine, along which the Derbyshire Wye flows to join the Derwent. Five miles to the east is Chee Tor, an almost perdendicular limestone rock, rising 400 feet above the Wye. The baths of Buxton have been famous for 300 years, and the springs supplying them are Calcareous and Chalybeate; the former are mostly tepid, with a temperature of 82° F. but some are cold. During the season from June to October the place is visited by many thousands of persons, who stay for a time, while a good many excursionists come up for the day from Derby and Nottingham, and some too from more distant places, like Birmingham, Wolverhampton, Liverpool, and Manchester. Buxton is a very good centre and easy of access. The waters are largely taken for indigestion, gout, rheumatism, and skin affections. There is accommodation for 4,000 visitors at a time, so that, like Ilfracombe, Bournemouth, and Matlock, it is in the main an invalids' town, with every convenience and attraction for them. It possesses an institution called the Devonshire Hospital, containing a hundred beds and receiving nearly 1,000 persons yearly, who are boarded and treated gratuitously. The Dukes of Devonshire have had much to do with the rise and magnificence of Buxton. One of the dukes in the last century spent £120,000 in building, not far from the present station, and between the two towns, a stupendous three-storied range of buildings of gritstone, called the Crescent. The central part is a vast curve, extending 200 feet, with wings 58 feet : it contains some hotels, a library and a few shops. Near the town is Diamond Hill, remarkable for its crystals, and Poole's Hole, a stalactite cavern a quarter of a mile long The Romans generally found out any natural water likely to be of service to invalids, and they did not overlook Buxton, and had some baths there.

Among other matters of interest I should add that Mary Stewart lived for a time here when in the custody of Lord Shrewsbury, and all lovers of Scott, and what educated man would dare to confess that he was not of the number, will remember how large a part of his longest novel—Peveril of the Peak—was enacted in the neighbourhood.

The baths, rebuilt some years ago, are considered to be among the finest in Europe, and with justice. The population is growing fast, and increased from 3,717 in 1871 to nearly 7,000 in 1881, and must now approach 10,000, and building continues in all directions.

During my late visit, far too brief and hurried to satisfy me, I was the guest of my kind friend Dr. Hyde, the resident physician at the Peak Hydropathic Establishment, an institution that has lately been greatly enlarged, and has been fitted up with all the best modern contrivances. As a specimen of what Buxton can offer the sick in the shape of comforts and advantages, I cannot do better than describe the arrangements. The establishment is lighted throughout by the incandescent electric light, and it has a hydraulic passenger lift. It is warmed in every part with hot water. It is admirably situated, only three minutes from the railway station, and is, therefore, close to the public gardens, the shops, and the baths. It is distinguished for its magnificent drawing and music room, not less than one hundred feet in length. The table is well supplied, and the principal meal—dinner—is a pattern of what a public table d'hote should be: it is at six o'clock.

Towns like Buxton largely depend on the perfection and cheapness of their boarding-houses, hotels, and hydropathic establishments, and there are few places which have less cause to complain: improvement seems impossible, for everything is as good as it can be.

S.U.M.

## No. 7.—DINSDALE-ON-TEES.

If a poll were taken of the readers of *Diet and Hygiene*, it is doubtful whether 950 in every thousand of them would not be obliged to admit that, previous to the perusal of this notice, they had no knowledge of Dinsdale, its locality, and its manifold advantages as a health-resort. Yet it has been so long recognised as possessing a mineral spring of great remedial value that Dinsdale Spa will be entitled to celebrate its centenary next year.

The sulphur spring for which Dinsdale is noted was discovered accidentally in 1789, by some men who were employed in making

experimental researches for coal. They had bored to the depth of seventy-two feet, through strata composed principally of red rock and whinstone, a basaltic geological formation, when the spring burst forth, accompanied with so much smoke and sulphureous smell, that the workmen were compelled to relinquish their operations where the spring was situated for several weeks. The next step taken was to dig a large hole in the ground, in the channel made by the water gushing from the spring, in order to form a somewhat primitive bath ; this was resorted to by persons resident in the neighbourhood, and suffering from various affections. The first cure effected by the use of this sulphur bath was that of a man, who, although he had been afflicted for many years with chronic rheumatism, obtained the complete restoration of the power of his limbs by using this bath and drinking water drawn from the spring. "There is nothing succeeds like success," and this and other practical illustrations of the remedial advantages derivable from the sulphur water in the cure of rheumatic and cutaneous disorders, soon made Dinsdale so famous throughout the district that, in 1797, suitable premises were erected, both for bathing in the water at its natural temperature, and for artificially heating it for warm baths.

Early in the present century, two local medical men, Dr. John Peacock, of Darlington, and Mr. Thomas Dixon Walker, a surgeon practising at Hurworth, a village near Dinsdale, wrote upon the subject of the sulphur spring at the last-named place, and thus assisted to bring its claims under public notice. We have before us a copy of Dr. Peacock's Observations upon the composition and uses of the Sulphur Water, published in 1805. This little treatise is written in a good, sound style, and, though one cannot refrain from occasionally smiling at the now obsolete and quaint phrases employed, it is evidently the work of a physician fully abreast of, and, indeed, in some respects, in advance of the medical science of his time. It sounds strange when he speaks of the *modern* "theory of pneumatic medicine" and enters into a grave and lengthy description of how the atmosphere is composed of oxygen, or vital air, and of azotic gas ; but our readers must bear in mind that the period when Peacock's pamphlet appeared was one of the most prolific ever known in chemical discoveries, and it would ill become the present

generation, on whose shoulders the next will stand, scanning still further and more clearly the horizon of science, to carp at the labours and researches of those who have preceded us. Seldom—perhaps never, before or since the close of the last century, and the commencement of this—has there existed such a noble body of men, working in common upon similar investigations into chemical science, for the cause of humanity, although widely separated from each other by distance, language, and the mighty events which then convulsed the greater part of Europe. Their names comprise Humphry Davy, Priestley, Beddoes, Cavendish, Erasmus Darwin, and James Watt (to whom we owe the principle of the construction of the steam engine,) in England, Lavoisier, and many others of equal note, in France, Germany, Italy, and other Continental countries. Beddoes and Davy were, about the period of which we speak, actively engaged in carrying on at Clifton, near Bristol, an institution where the "modern theory of pneumatic medicine," of which Dr. Peacock speaks, was tested to the fullest possible extent.

But what we have to consider here is the practical aspect of the question. Dr. Peacock and Mr. Taylor were both agreed that the sulphur water was most beneficial in chronic affections, particularly of a rheumatic or dyspeptic character, diseases of the liver and spleen, and a whole host of cutaneous disorders ; and the common *consensus* of all medical men since their day is with them in this respect.

Having regard to these facts it would, at first sight, seem strange that Dinsdale Spa should, for so many years, have remained stationary, instead of rapidly progressing in general popularity. Indeed, the sulphur spring of Dinsdale was, perhaps, better known and appreciated forty years ago than it is now. But, unfortunately, there is a fashion in everything ; and, of late years, it has been the unreasonable, we might almost say senseless, fashion for people to rush off to the Continent, at a considerable outlay of money and time, to visit some health resort where the benefit derived is not superior, even if equal, to that which would be obtained by a temporary residence at some British Spa,—particularly if the amount of unnecessary trouble and expense involved is taken into account. A good deal is said, just now, about the decadence of patriotism ; we would remind the class to whom we have just referred, that patriotism, like charity, often begins best at home.

The best analysis which has been made of the Dinsdale spring is that of the late Mr. W. C. Wigner, who gives the following results, per imperial pint:— Dissolved gases,—sulphuretted hydrogen, 0·28 cubic inches; carbonic acid, 2·46; total of gases in solution, 2·74 cubic inches. Dissolved solid matter,—bicarbonate of lime, 4·93 grains; sulphate of lime, 13·61 grains; sulphate of magnesia, 6·51 grains; sulphate of potash, 1·84 grains; sulphate of soda, 1·34 grains; chloride of sodium, 3·57 grains; total of solid matter in solution, 31·80 grains. Without minutely discussing its chemical constituents, it will be evident that this water abounds in saline and sulphur products. It differs from the sulphur water of Harrogate in the respect that it contains a less proportion of aperient salts, but this circumstance is in favour of the Dinsdale spring, as the water, when drank, remains longer in the system and is consequently more efficacious. The quantity of sulphuretted hydrogen is considerable, and as long boiling is requisite to wholly remove it, it must be evident (as has been specially pointed out by the late Dr. Granville, F.R.S. in his "Spas of England,") that this water is well adapted for warm bathing; a fair proportion of it will remain in the water after it has been heated, which is not the case where the water is less powerfully charged with sulphuretted hydrogen. The amount of sulphur contained in the water may be judged when we mention that wherever it trickles a copious deposit of sulphur remains; and this may be scraped up in large quantities. The effect of the sulphur vapour upon metals, notably gold and silver, is remarkable; the former it imparts a silvery hue to, and the latter quickly assumes a dirty, leaden appearance. Mr. Messenger, the courteous manager of the baths, and pump-room, and of the new Spa Hotel, since its opening, told us an amusing anecdote of a gentleman who, having come to the establishment for a warm sulphur water bath, hung his silver watch on a peg in the bath-room, in order that he might know the time during which he was in the bath. After dressing, he went off in the direction of his lodgings, but, discovering that he had left his watch behind, quickly retraced his steps. Upon the attendant fetching the watch and chain from the bath-room, the gentleman indignantly asserted that they were not his property, strongly asseverating that his were made of silver. The only way in which he could be convinced was by showing

him the maker's name, and drawing the attention to the peculiar pattern of the guard.

So far, one spring only has been spoken of, but others exist at different parts of the same estate. There are two sulphur springs, one strong, the other milder, in chemical composition, situated in a wood about a mile from the present Spa ; and at the old manor house of Dinsdale, not quite so far distant, a sulphur spring formerly bubbled up in the moat which partly surrounded the house. When the moat was drained into the Tees some little time since, the spring disappeared. In the garden of the manor house there is a chalybeate spring, the water of which contains iron in considerable proportions. This might be turned to good account, in the treatment of anæmia, debility, and other kindred disorders ; either by itself, or alternated with the sulphur treatment. In speaking of the sulphur springs in the wood, we omitted to mention a singular fact as regards the principal one, namely, that it always remains at the same equable temperature, unaffected by changes of atmosphere, and never freezes in the coldest depths of winter. In summer it is deliciously cool ; in winter, owing to its temperature being so much higher than that of the surrounding objects, it gives off a hot, steamy vapour.

It would seem as if there were no limitation to mineral springs at Dinsdale, for within the past few weeks another new spring has been discovered in the above-mentioned wood. The analysis of its constituents shows that it is rich in sulphate of soda, and sulphate of magnesia, thus resembling the celebrated Carlsbad water.

The country surrounding Dinsdale Spa is charming, and it would be impossible to imagine any more suitable position for a resort for patients desiring quiet, pure air, and beautiful scenery. The Spa pump-room and hotel are situated at the foot of a high hill, within a few yards of the river Tees, whose sparkling, pellucid stream gives a never-ceasing musical ripple as it flows swiftly along, now over shallows, now through deeps, in its course towards the sea. A pretty walk along the river bank in one direction, leads to a clean, little village, aptly styled Middleton-One-Row, from the houses being built on one side of the road only ; here there are numerous comfortable lodgings for persons who desire to reside near to the Spa while using the sulphur water. Stretching away to the right of the hotel, and

passing in an upward direction close to the winding river, the path leads through the pleasant woods which cover the sloping hill, in the direction of the manor house, and of the wood in which the other springs that we have referred to are to be found. The manor house itself abounds with antiquarian associations. Very extensive Roman remains have been unearthed in the immediate vicinity of the manor house, and it is not improbable that, nearly eighteen centuries ago, Roman warriors availed themselves of the facilities for bathing in the water derived from the Dinsdale sulphur springs. At the side of the road leading towards the manor house, there is an ancient elm tree, said to be 700 years old, the survivor of two which formerly stood in that position, known as the Abbot's elms. Some idea of the tortuous course which the Tees takes may be formed when we mention that in a walk of one mile in this direction, a semicircle is described. An iron bridge above this point crosses the river, connecting the Durham (left) bank with the Yorkshire (right) bank of the Tees, and bringing within a short walking distance of each the villages of Dinsdale-on-Tees, and Nesham, on the Durham side, and of Over-Dinsdale, on the Yorkshire side. Until the construction of this bridge the distance between these villages, respectively, round by another bridge was ten miles ; whereas, now, it is barely a mile. The church of Dinsdale is very ancient, and has of late years undergone complete restoration. The church and lands connected with it were given by one Ralph Surtees and his wife, to provide lights for the altar of St. Cuthbert. The manor and estate of Dinsdale are still in the hands of the Surtees family, who have been connected with Dinsdale since the Norman period. The family name is itself derived from the banks of the river on which their estate is situated. In old chronicles, we find the name of Ralph Dittensdale, also described in the bad Latin of that date as Ralph de Super-Tey sam,—Ralph of On-Tees ; otherwise in Norman French, Surteys, which has become modernised into Surtees. Before retracing our steps to the Spa Hotel, we must first take a look at the salmon leap, called Fish Lock, a barrier consisting of a stone wall, some seven or eight feet, thrown nearly across the river. In summer-time numerous salmon which have come up from the sea may be frequently seen, endeavouring to leap the weir.

Returning to the Spa Hotel, we rest in front for a few moments to glance over the rural scenery of the vale of Cleveland, sometimes described as the "garden of Yorkshire," on account of its fertile soil and highly cultivated condition ; and we then ascend the hill, at the foot of which (as we have already stated) the Spa is situated, so that we can get a glimpse of Dinsdale Hall. This is a spacious mansion which was erected by the first Earl of Durham, about fifty years ago, at a cost of £35,000, in those days of cheap materials and cheap labour. It was carried on for some years as an hotel, but it has been more recently diverted from that purpose, to which it was admirably adapted, both by its commanding position, and the number and size of its rooms. Amongst the many distinguished persons who patronised it when it was conducted as an hotel were the former Duke of Wellington and the Baroness Burdett-Coutts.

Dinsdale Spa is easy of access. The railway journey from the metropolis, is accomplished in a few hours by fast trains to Darlington, whence the new station, Dinsdale, is reached in a few minutes by the branch of the North Eastern Railway running to Redcar, Saltburn. and other seaside watering places. This constitutes a great inducement for persons in quest of health and change to visit Dinsdale, as they can readily alternate their residence, spending part of the time at the coast, and the remainder inland at Dinsdale. Until last year, the nearest station to Dinsdale Spa was a place known by the euphonious name of Fighting Cocks, two miles away, on the Darlington and Stockton line. This line is remarkable as the first on which steam locomotive power was brought into practical use. A clause in the original Act of Parliament passed in 1821 empowering its construction, stated that the carriages were to be propelled by means of men and horses, "or otherwise." Shortly after the Act was obtained, George Stephenson was appointed engineer, and, at his instigation, the promoters applied for a new Act enabling them to work the railway with locomotive engines. "Otherwise" gained the day, and, on the 27th of September, 1825, the line was opened, despite the direst prognostications of the evils that would result. George Stephenson himself drove the engine, named the "Locomotion," and astonished all his detractors by attaining an average speed of 5 miles an hour ! "Great oaks from little acorns grow," and we practically

realised the truth of this proverb on our return to town by making the run from Grantham to King's Cross, 105 miles, in just over two hours.

In taking leave of Dinsdale Spa, we would point out that, while it requires to be made better known, it will also be necessary to keep fully up to the times by various improvements and additional accommodation. This could be effected with a judicious expenditure of capital. The large mansion on the hill could be converted into a first-class hydropathic establishment; the present Spa Hotel could be continued for those visitors who might prefer the comparatively greater privacy of a smaller house; the pump-room and baths should be enlarged to meet the growing needs of the crowds of visitors who would be attracted to the place by increased residential accommodation; and, during the summer months, temporary shelters should be erected close to the various springs which have been enumerated, for the convenience of those persons who might be disposed to resort to them for the purpose of drinking the water. These improvements could be effected better by a syndicate or company than by a private owner; but, in any case, they could not fail to be productive of large pecuniary profits, while extending the benefits of the Spa to a much larger section of the community.

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# DIGESTS OF ELEMENTARY PHYSIOLOGY.

## II.—ON THE CIRCULATORY SYSTEM.

It may be appropriate to give a short account of the fluid contained in the heart and its vessels, before entering on the subject of the mechanism by which it is supplied to the tissues. The blood is an opaque fluid, heavier than water. Microscopically, it is seen to contain solid bodies called corpuscles floating in a colourless fluid termed plasma. The corpuscles are of two kinds, red and white. The former are disk-shaped bodies consisting of a jellylike protoplasmic substance through which a red colouring matter termed hœmoglobin is diffused. The latter are irregular in shape, contain a

nucleus, and are observed microscopically to undergo constant changes in form, and execute psendopodial, or ameboid movements. The red corpuscles are much more numerous than the white. Considered chemically, blood is an alkaline fluid, its constituents being solids, gaseous matters, and water.

It is the corpuscles which give to the blood its vivifying influence, and it is absolutely necessary for the life of the tissues that their blood supply be free and uninterrupted, so that, by transudation through the walls of the vessels which contain it, they may get rid of their waste products and take in the nourishment they require.

The mechanism of the circulation may now be described. The heart, the essential organ of circulation, is situated between the two lungs, in nearly the centre of the chest, and is enveloped externally in a double bag of serous membrane termed the pericardium. Its size is roughly estimated as equal to the closed fist of the individual to whom it belongs. It is composed entirely of muscular fibres, and is divided longitudinally by a muscular partition called the septum into two portions, each of which is divided transversely into two chambers, an upper and a lower. The upper chambers are termed auricles, the lower ventricles, right and left, as the case may be. The walls of the ventricles are thicker than those of the auricles, and the walls of the left ventricle are thicker than those of the right; but all four chambers have the same capacity. They are lined by an epithelial lining called the endocardium. There is no direct communication between the two auricles, or the ventricles; but the right auricle, communicates with the right ventricle, and the left auricle with the left ventricle by means of valves. The right auriculo-ventricular valve, called also the tricuspid, consists of three flaps of fibrous tissue covered with endocardium which are attached to the fibrous ring surrounding the auriculo-ventricular aperture. The edges and apices of the flaps are attached by fine cords, the chordæ tendineæ, to the papillary muscles on the inner wall of the ventricle. The mitral, or left auriculo-ventricular valve, is similar in structure to the tricuspid, but consists of two instead of three flaps.

The vessels belonging to the heart are the arteries, veins, and capillaries. Those which convey blood from the heart are the arteries; those which carry blood to the heart are the veins; and those

connecting arteries with veins are the capillaries. Veins and arteries are similar in structure, but the walls of the arteries are thicker than those of the veins, and contain elastic as well as muscular fibres, while the walls of the veins contain few of either. Most of the latter are supplied with valves at intervals, but the arteries have no valves except where they leave the heart. After numerous sub-divisions the arteries become continuous with the minute tubes termed capillaries, the walls of which are composed only of the epithelial lining of the arteries, the arterial walls becoming less and less complex as they approach the capillaries and decrease in calibre. The capillaries form networks which are freely supplied to almost all parts of the body. Finally they enter into tubes of larger calibre which have thicker walls and are supplied with valves at intervals ; these are the veins already mentioned.

The course of the blood through the above structures must now be described. The heart contracts rhythmically, the contraction of the auricles being succeeded by a similar contraction of the ventricles. Then follows a pause. The state of contraction of auricles or ventricles is termed their systole : the state of relaxation, their diastole. The heart beats about seventy-two times a minute. The systole of the auricles and ventricles occupies two-fifths of the time taken by the cardiac cycle, the diastole lasts the remaining three-fifths. When the left auricle contracts it forces the blood into the left ventricle. The contraction of the left ventricle forces its contents into the aorta, whence proceeding through the numerous arterial branches, and the capillaries in which these terminate, it is conveyed to all parts of the body, the lungs excepted. The capillaries unite into small veins, these again into larger ones, till at length the blood is returned by two main trunks, the superior and inferior vena cava, into the right auricle. This is termed the systemic circulation. But simultaneous with the contraction of the left auricle, the right auricle contracts, and forces its contents into the right ventricle. The contraction of the right ventricle forces the blood into the pulmonary artery. From the branches of that artery it enters the capillaries of the lungs, and is finally returned by the pulmonary veins into the left auricle. This is the pulmonary circulation. From the root of the aorta spring the two coronary arteries which supply the heart itself with blood.

Their capillaries terminate in the coronary vein which opens directly into the right auricle. The blood which has circulated through the stomach, intestines, spleen, and pancreas is finally collected by the portal vein. This vein does not immediately enter the inferior vena cava, but, unlike other venous trunks, breaks up into a number of capillaries on reaching the liver. These capillaries unite with those from the hepatic artery, the artery of the liver, and from the common capillary meshwork arise veins which ultimately unite into the hepatic vein which on leaving the liver opens into the inferior vena cava. This is spoken of as the portal circulation. The general function of the valves of the heart and its vessels is to prevent the return flow of the fluid they contain. When the left auricle contracts the blood has little difficulty in forcing its way into the left ventricle which is already in a relaxed condition. But when the ventricular systole takes place, the aorta being already full, the whole force of the contraction has to be spent in overcoming that resistance, unless the blood is to push its way back into the auricle. The function of the mitral valve is to prevent the latter course. As the blood flows into the ventricle it gets behind the flaps of the valve and forces them up, so that they almost close the auriculo-ventricular aperture. The first action of the ventricular systole is to completely close the valve, which is prevented from forcing its way into the auricle ; for at the same time that the two sides of the ventricle tend to approach one another during the ventricular systole, the papillary muscles, to which the chordœ tendineœ are attached, contract, and thus preserve the tension of the cords. But before the blood can enter the aorta it has to overcome the resistance of the semi-lunar valves, three pouch-like valves placed at its orifice from the heart. The open ends of these valves, which are similar in structure to the watch-pocket valves of the veins, point from the heart, and oppose the return of any fluid to the heart from the artery.

The action of the tricuspid valve is similar to that of the mitral, and where the pulmonary artery arises from the right ventricle a semi-lunar valve is placed similar to that at the aortic orifice.

When the ventricular systole takes place the heart turns slightly on its axis, and its dense apex bending upwards can be felt between the fifth and sixth ribs on the left side. This is termed the cardiac impulse.

What is known as the pulse is the dilatation of the arterial walls caused by the ventricular systole forcing blood into elastic tubes already full. The shock of the ventricular systole is felt all over the arterial system at once, but it is too delicate to be detected by ordinary means. What is generally spoken of as the pulse is therefore the actual dilatation of the arterial walls which is propagated in the form of a wave, which travels at the rate of about ten yards a second. So that the pulse is a little later in arteries furthest from the heart than in those nearest. The force of the heart's beat is not wholly spent in forcing the blood along; part is spent, as has already been seen, in dilating the arterial walls. The aorta is already full when the ventricular systole takes place, but, in virtue of its elasticity, that portion of its walls nearest the heart dilates to accommodate the extra supply of blood, and then contracting forces the blood onwards, thus causing a similar dilatation followed by a similar contraction. And it is this alternate contraction and dilatation which gives rise to the pulse wave. How it is that the pulse becomes lost in the veins can best be understood by a reference to the hydraulic principles of the circulation. If water be injected by a pump into a given length of rigid tubes, it will be ejected from the distal end in jerks corresponding to the action of the pump. And this will be the result whether or not a stopcork is introduced into the distal end of the rigid tube or not. But if instead of rigid tubes elastic ones are used, and a stopcork, or sponge, is introduced at the distal end, the water will no longer flow in jerks corresponding to the pump's action, but in a steady flow. The factors in this change are the elasticity of the tubes and the peripheral resistance offered by the stopcork. The longer the tubes and the more elastic their walls, in other words, the greater the amount of elasticity brought into play, the steadier will be the flow of the fluid from the distal end.

In the arterial system the capillaries form the peripheral resistance, and this resistance, together with the elasticity of the arterial walls, convert a jerked impulse into a steady flow. Hence the pulse becomes definitely lost in the veins.

The sounds of the heart are two, a longish dull one, succeeded by a short sharp one, then a pause. The short sound is caused by the closure of the semilunar valves. The longish dull sound is probably caused partly by the closure of the auriculo-ventricular valves, and

partly by the contraction of the muscles of the ventricle as it corresponds in time with the ventricular systole.

Control is exercised by the central nervous system over the vascular mechanism. The ordinary rhythmical beating of the heart is produced by nervous ganglia lodged within its substance. But inhibitory, or slowing, impulses are continually passing down from the brain by the pneumogastric nerves. Hence if the pneumogastrics are cut the heart beats faster. By artificial stimulation applied to the peripheral cut end of the pneumogastric, the heart can be slowed or stopped. Afferent impulses may reach the brain from the intestines and being reflected down the pneumogastric inhibit the heart's beat in a reflex manner. The sympathetic nervous system supplies branches to the walls of the arteries which regulate their contraction, and hence exert a local control over the circulation. These are the vaso-motor nerves.

ATHOL L. MEREDITH.

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# ON DEAFNESS RESULTING FROM SEA-BATHING.

## (A COMMON, BUT OFTEN UNSUSPECTED SOURCE OF INJURY TO THE SENSE OF HEARING.*)

BY W. ABBOTTS, M.D.,

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FOR many years I was considerably puzzled by the fact that I was more frequently consulted in private practice by persons suffering from recent deafness, during the months of July, August, and September, than during any other three—I might even say during any other six—months of the year.

The patients were almost always young or middle-aged, in good circumstances, and often volunteered the statement that the deafness

*Since the publication of an article on this subject in the columns of one of the medical journals, I have received numerous letters from medical men detailing cases which confirm the correctness of the views which are here put forward. I could, if requisite, adduce many corroborative cases which have come under my notice, but the frequent coincidence between sea-bathing and deafness seems now to be more generally admitted.

could not arise in connection with their general health, which was especially good, and had been further improved by a temporary residence at the coast. There seemed at first sight no reason whatever for the occurrence of deafness in these persons; and I was consequently for a long time at a loss to account for many of the cases referred to.

One circumstance struck me, however, as being almost uniformly present in the short sketch each patient gave me of his or her individual history, namely, that at no distant period, prior to my being consulted, the patients had resided at the seaside.

Other possible sources being, one by one, eliminated from the causation of the deafness, none remained for consideration beside this circumstance; and when I came to regard the fact that nearly all my patients were young or, at any rate, had not passed the middle period of life, it at last dawned upon my mind that the primary cause of these cases of deafness for which I was consulted was sea bathing—the connection of this otherwise healthful practice with the affection being due to the local inflammation set up by the introduction of small quantities of water into the ears during the time of taking the bath.

It is to this circumstance—the admission of water into the external passage of the ear, and the subsequent results of its evaporation—that the noises in the ear and deafness, which many persons complain of after sea-bathing, are attributable.

The most common causes of ordinary acute inflammation of the external passage of the ear, and of the drum of the ear, as well as of mucous inflammation of the middle ear, are wet and cold, more particularly the former.

In his standard work, entitled "The Aural Surgery of the Present Day," Dr. W. Kramer, the eminent aurist of Berlin, states that the general custom in England of washing the head and ears very often in cold water, explains the frequent occurrence of deafness, with modified secretion in the external passage of the ear, amongst the English people. He bases this view upon experience when resident for a short time as an aural practitioner in London; and I am fully able to endorse his opinion from observation of many cases of deafness both in hospital and private practice, where the loss of hearing could be clearly traced to this almost universal habit.

The patient is always slow to perceive the true cause, and will often, at the first consultation, assure his medical adviser that the deafness cannot depend upon any stoppage of the ears, as he has washed them out regularly. But, in this operation, simple though it may appear, and harmless as it is in other respects, a portion of the fluid—small it may be—passes into the outer passage of the ear and becomes lodged there, as it is a difficult matter to dry this passage, especially in the inner half of its extent. The water which thus remains is gradually removed by evaporation and absorption, and a chilled condition of the passage results, highly conducive to inflammation of the part and subsequent impairment of the organ of hearing.

Many persons immediately after bathing complain of unpleasant sensations in the ears, consisting of crackling, buzzing, ringing, and other noises, with more or less deafness, but only a few attribute this series of symptoms to the real cause, being usually ready to ascribe them to the shock of the waves, to the coldness of the water, or to some circumstances connected with their general health. That it is not due merely to the shock of the waves is evident from the fact that corresponding symptoms follow bathing in still water, if the head is submerged (an opportunity being thus afforded for the entry of water into the external passage of the ear), or when a small quantity of water is introduced into the ears as in the ordinary ablutions. In point of fact, the form of deafness to which I have referred in these remarks may be as readily brought on by dipping one's head into a basin of water as by a plunge into the Atlantic.

The dangerous habit of cleansing out children's ears with wet cloths is much to be disapproved of on this account, and the practice amongst older persons of dipping their heads into a basin full of water, and thus filling the ears with the fluid, is equally objectionable and injurious for the reasons that have been given in this paper. Speaking from wide and large experience of affections of the ear, I have no hesitation in asserting that many thousands of cases of deafness might be traced to these two mistaken practices.

Fortunately, the means of prevention are simple. All that needs to be done in ordinary ablutions is to prevent the entrance of water into the external passages of the ears, and particularly to avoid purposely filling the ear with that fluid. In sea bathing, where the

ears must be necessarily exposed to the entrance of water, unless they are properly protected, it will be desirable to stop the ears previously with oiled wool, undressed sheeps' wool being better for this purpose than cotton wool. Bathing-caps do not furnish a sufficient protection against the admission of water into the ears during bathing.

As to the best modes of keeping the external passage of the ear clean, and free from dust or other similar small matters which have been introduced into the ear, a few drops of pure glycerine or olive oil occasionally dropped in, the passage being afterwards wiped out with the corner of a dry towel, will be generally found to answer the purpose.

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STERN'S PUMILINE PREPARATIONS.—These have come to the front wonderfully of late, and have earned the highest praise from all who have used them. It is well known that pine products possess considerable remedial value, but their properties vary greatly in degree. It is this circumstance, in particular, which has induced Messrs. G. and G. Stern to employ in their preparations only the essence and extract obtained from the Pumilio Pine, which grows in the Alpine regions at high altitudes of six to eight thousand feet above the sea level. This must necessarily increase the cost of production, at the same time that it insures purity and excellence; but Messrs. Stern have not allowed it to affect the price, which is so low as to place the Pumiline preparations within the reach of the most slender purse. The products specially manufactured by Messrs. G. and G. Stern are the Essence, the Extract, Jujubes, and Soap. The essence and extract are used at the Farnborough Pine Establishment, at the new baths at Woodhall, and other leading public establishments. These and the other preparations can be procured through any respectable chemist, but, as has been pointed out in the *Lancet*, *Diet and Hygiene*, and other journals, care should be exercised that no worthless imitation should be passed off upon the purchaser.

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THE UNIVERSAL FOOD AND COOKERY EXHIBITION.—A numerously attended meeting was held at St. James's Hall on May 22nd, when the prizes awarded to the successful competitors were presented by the Baroness Burdett-Coutts, who made some excellent remarks upon the necessity of good cookery. The announcement was made that the net profit from the Exhibition had been £800, which had been divided equally between the Charing Cross Hospital and the French Hospital. Upon the whole, all proceedings connected with the Exhibition have been most satisfactory, although some of the exhibitors have complained, not without reason, that they were overlooked. Two cases came under our notice; one that of Mons. Lefer, who complained that a condiment exhibited by him had not been examined by the Jurors in his class; the bottles containing it not having been opened. As his complaint was promptly met by the granting of a diploma of merit, we presume that Mons. Lefer was satisfied. The other case was that of Mr. Preston, of Ramsgate, who exhibited specimens of Lentil-Almo Bread and Cakes. These were apparently overlooked by the Jurors in Class IV.; at any rate, they were never cut into or tasted. Here was a case practically identical with that of Mons. Lefer, and it was hoped by all to whom the circumstances were known that the Committee would extend to one exhibitor the same measure of justice which had been shown to the other. Such was not the fact, however, although a special jury subsequently reported upon the Lentil-Almo products, and strongly recommended them for an award, on account of their dietetic excellence and economy. When we mention, in fairness to Mr. Preston, whose Lentil-Almo Bread has gained favorable notice from the press and the medical profession, that this special jury included Dr. Abbotts, the editor of *Diet and Hygiene*, Mons. Juteau, *chef* to the French Embassy, and Mons. Lecour, *chef* to the Duke of Cambridge, we think that the Lentil-Almo Bread will gain considerably in public estimation.

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## HAY FEVER, HAY ASTHMA, OR SUMMER CATARRH.


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ALTHOUGH at this period of the year the great majority of people are enjoying the warm, bright days, we have amongst us a relatively small minority,—yet numbering thousands,—to whom summer means an annually recurring attack of illness, accompanied by much discomfort, and frequently partially or totally incapacitating the unfortunate victims for their usual avocations during weeks and months. We refer to those persons who suffer the from affection now generally designated as Hay Fever.

This disorder to which the different names placed at the head of this article have been variously applied, according to the relative intensity of the febrile, bronchial, and catarrhal symptoms, is one of great special interest.

In some patients the febrile, in others the bronchial or pulmonary, and in others the catarrhal symptoms predominate ; while in many, again, the several groups of symptoms are blended, or alternate with each other. The catarrhal, and next to them the febrile symptoms, are most common in persons under thirty-five years of age: after this period of life, the asthmatic symptoms are frequently most prominent.

Although it is an affection in which the symptoms are often most unmistakable, and the patient's sufferings very severe, scarcely any references to it are to be found in any of the older works on medicine. The first mention seems to be in Heberden's Commentaries on the History and Cure of Diseases, a posthumous work edited by his son, in 1802. This author, writing on the subject of catarrh, observes "I have known it (catarrh) to return, in four or five persons, annually in the months of April, May, June, and July, and last a month, with great violence."

The next we learn of Hay Fever is in an article by Dr. Bostock, published in the Medico-Chirurgical Transactions, for 1828. Dr. Bostock was himself a sufferer from the "great violence" of Hay Fever, or, as he styled it, summer catarrh,—*catarrhus æstivus*,—and this circumstance prompted him to make such researches and inquiries as served to throw much light upon the affection.

Still the subject did not receive the attention it deserved until the publication in 1862 of an interesting monograph, entitled "*Der Typische Frühsommer-Katarrh, oder das sogenannte Heu-Fieber, Heu-Asthma*, (on the typical catarrh of early summer, or the so-called Hay Fever, or Hay Asthma.) This work was from the pen of my esteemed friend, Dr. Phœbus (a somewhat appropriate name, when we consider the important part often played by the sun's rays in inducing Hay Fever,) Professor of Medicine in the University of Giessen.

As the affection is attributable to numerous other causes besides the aroma of hay, it will be noticed that Professor Phœbus preferred to style it "*Frühsommer-Katarrh*," which may be abbreviated to summer catarrh, thus corresponding with Bostock's term. Still, for ordinary descriptive purposes, and having regard to the circumstance that the disorder is most prevalent during the hay season, the term Hay Fever will be principally employed in this article.

The symptoms of Hay Fever are of varied character. Phœbus arranges them in six groups; and, as his classification is a sound one, I shall follow it here. Of course, they seldom occur in the same exact, regular manner as is described, occasionally some symptoms, at other times others, prevailing.

The first group of symptoms are connected with the nostrils, and

are similar to those of a severe catarrh, especially sneezing, which is very loud and frequent, and recurs in paroxysms of ten, twenty, or more sneezings in rapid succession, coming on at short intervals ; so that the sufferer may sneeze as often as several hundred times in the course of twenty-four hours. One patient, a medical man, thirty-four years old, in whom the first attack of Hay Fever made its appearance as early as the eighth year of his age, when describing his own case, specially referred to the sneezing and the struggle against it, as constituting a continuous and very troublesome annoyance. When he passed the day without much sneezing, he usually enjoyed almost entire freedom from asthma during the night ; on the contrary, when the sneezing had been more marked during the daytime, the patient was generally tormented by asthmatic paroxysms at night. The excitation caused by the sneezing appeared to render the bronchi peculiarly irritable, and liable to spasm ; a complication which I have observed in several cases. At the commencement of the attack there is no discharge, or only a slight one, of nasal mucus, but after a few days a considerable quantity of watery, limpid fluid is discharged from the nostrils. The nose often becomes swollen and inflamed, but the sense of smell, although occasionally diminished, is seldom completely lost. In some cases, indeed, the faculty of smell may become so acute as to make it impossible for the sufferer to remain in a room where any strongly scented flowers have been placed.

The second group of symptoms are observed in the eyes, and the patient complains of catarrhal ophthalmia, with greatly increased secretion of tears. Heat and a sensation of fulness are felt, at first along the edges of the lids, particularly at the inner angles, and after a time these symptoms extend over the whole of the eyeball. Acute itching and irritation are subsequently experienced. The flow of tears is often excessive ; the conjunctival lining of the eyelids looks red and swollen, especially at the margins, and a thick, yellowish matter is secreted by them. The eyesight is weakened, and the intolerance of light is often very trying.

The third group of symptoms are localised in the throat, and are somewhat similar to those present in catarrhal sore throat. There are redness and inflammation of the mucous membrane, with intense

itching of the fauces and the posterior part of the soft palate, and this unpleasant sensation is aggravated by the ineffectual efforts which the sufferer makes to relieve it by moving the tongue about the mouth. Sometimes an eruption of a number of minute inflamed points makes its appearance at the back of the mouth. There is difficulty, sometimes even pain, in swallowing; the mucous secretion is at first diminished, but is afterwards increased, and becomes very abundant. The tonsils and uvula are redder than usual, and relaxed.

The fourth group of symptoms are those connected with the head; the most prominent of these is headache, sometimes only slight, but more commonly severe, and situated either at the forehead, which feels hot and burning, at the back part of the head, or throughout its entire extent. The pain is very often brought on and increased by the paroxysms of sneezing, and, assuming a neuralgic character, it may extend along the course of the facial nerve, or into the external auditory passage. The patient complains of a constant feeling of irritation and itching about the forehead, the nose, the chin, and the ears. Sometimes, he also suffers from giddiness, loud ringing or buzzing noises in the ears, and other signs of congestion of the brain, especially if the paroxysms of sneezing have been very great.

The fifth group of symptoms are situated in the whole extent of the mucous membrane of the larynx, extending also to the bronchi, and the patient is affected with bronchial catarrh, asthma, and cough, with a variable amount of difficulty of breathing. In some instances the cough is comparatively insignificant, while in others it is very severe and loud, and may then be accompanied by expectoration, which is occasionally copious, and in rare cases streaked with blood. Not unfrequently a sensation of irritation is felt in the larynx, or in the trachea, and there is a feeling of weight and oppression within the chest; the patient's voice becomes muffled and hoarse, and in some instances I have observed almost complete loss of voice. The difficulty of breathing is sometimes very distressing, and wheezing, sibilant sounds may then be heard throughout the greater part of the lungs. These attacks of dyspnœa are more strongly marked towards the evening, and continue during the whole of the night. It is in

this class of cases that the patient's sufferings are the most severe. Generally, after having been asleep for one or two hours, or a longer period, the patient wakes up suddenly, gasping and struggling for breath, as if every moment would be his last ; his eyes are protruded, his lips and face become livid, and he eagerly throws open the windows and door of his room in his ineffectual efforts to get more air, until he finally sinks down completely exhausted. When he falls asleep again, his slumber is short and restless, and he is once more aroused, after a brief interval of repose, by the same painful constriction across the chest, and the difficulty of breathing. The regular periodicity of the asthmatic attacks in relation to the hours of sleep is remarkable.

The sixth group, in which are comprised the general symptoms, are those of catarrhal fever, together with disturbance of the nervous system. The pulse is not greatly increased in frequency during the day, but towards evening it becomes much accelerated, and the number of beats may amount to as many as one hundred or more in the course of a minute. Shivering and cold perspirations come on alternately after the more severe attacks of coughing and sneezing. The patient is uncomfortable, restless, and unfit to attend to his ordinary avocation, and complains of weariness, defective memory, inability to fix his attention upon what he is doing, and heightened susceptibility to external impressions. There is a sense of general irritability, and the least noise, draughts of cold air, and various trifling inconveniences, which at other times would pass unheeded, disturb and distress the sufferer very much. The digestive organs are often greatly impaired, as is evident from the loss of appetite, furred tongue, acid dyspepsia, and other corresponding conditions. The skin is hot and dry before the paroxysms come on, and, after they have passed off, it becomes clammy, moist, and sometimes bedewed with copious perspiration. Herpes and urticaria are two forms of skin disease which not unfrequently make their appearance during the progress of the affection.

The premonitory symptoms are not of long duration, and they consist chiefly of a general feeling of ill-health and *malaise*, together with various uncomfortable sensations in the different organs where the affection subsequently becomes localised. The permanent

symptoms usually come on suddenly, and remain for some weeks, or, even in severe cases, months. The parts which are first affected are the eyes and the nose; next, the throat complications set in; and, as a general rule, the bronchial symptoms occur still later. The symptoms connected with the nose and eyes are commonly most severe in the morning, commencing directly the patient rises from bed; the difficulty of breathing and the feverishness are more marked towards night. As the attack wears off, the local symptoms are diminished, and gradually disappear, leaving behind general debility, with heightened sensitiveness of both mind and body. The patient is for some time liable to a relapse, if he should happen to be again exposed to the exciting causes of the malady. Many patients suffer from a second attack, usually not so severe as the first, in the months of August and September.

The duration of the illness varies in different persons. The average length of the prominent symptoms is from six to eight weeks; but in some individuals it lasts for as long as three or four months.

During the earlier years in which a patient is subject to the attacks of Hay Fever, the length of the illness increases with every year: but at a later period of life it may gradually diminish. The tendency to suffer from the affection is never completely lost in those who are predisposed to it; in evidence of which fact I may mention that I once had under my care a gentleman, 83 years of age, who had suffered from Hay Fever for more than fifty years. During the greater part of June, July, and August he had been more or less invalided; representing in the aggregate, a large amount of suffering and disablement through this single ailment, in addition to which, when he first came under my notice, asthmatic complications existed at other seasons of the year.

Hay Fever is most commonly a disease of adult life, but it may occur at all ages, and even in very young children. It makes its first appearance usually between the tenth and thirtieth year of life, and very rarely, indeed, has it been known to fail to show itself until after forty years of age.

It is singular how many individuals suffer from Hay Fever for years, without the real nature of the affection being suspected. One

person imagines that he is suffering from an attack of common influenza ; another thinks that he is merely out of sorts ; and a third fancies that his ailment is ordinary asthma or bronchitis : so that they may go on for many years without divining the cause, or deriving benefit from treatment.

One peculiar characteristic of Hay Fever is its periodical return, which happens almost invariably about the month of June in every succeeding year,—the date of its recurrence bearing a direct relation to the first hot days of summer. The sultry, close weather at the commencement of summer is always a powerfully exciting cause of Hay Fever.

Another point worthy of remark, is the hereditary tendency to suffer from this disease. In connection with the family history of patients having Hay Fever, it is interesting to note the close relation which evidently exists between this disorder and asthma, bronchitis, gout, and intermittent fever. In seventy per cent. of cases, either the parents or other very near blood-relatives have suffered from one or other of these four affections. The connection of intermittent fever, or ague, with Hay Fever, is the more remarkable when we consider the periodicity shown in these disorders.

Hay Fever has been more frequently observed in England than in any other country ; but the apparent greater prevalence here may be due to the greater attention which has, of late years, been given to the subject. According to different Continental authorities it is evident that the disorder is not uncommon in Germany, Belgium, France, and Switzerland ; and cases have also been recorded of Hay Fever occurring in Italy, Austria, Russia, Denmark, and other European countries. A patient of mine told me that he suffered severely from Hay Fever every summer, during ten years' residence in New Zealand, where, he said, the affection is common. I have also met with persons who have suffered in Australia and India, and at the Cape.

It is known to attack many persons in America ; and Dr. Dunglison, of Philadelphia, in his "Practice of Medicine," bears testimony to the fact that "summer-bronchitis," as he styles it, is as prevalent in the United States as it is in Europe. I have, myself, seen several sufferers there from Hay Fever, as well as from an analogous

affection, attributed to the odour of roses when in bloom. The last-named affection is by no means rare in some parts of the United States where rose trees are cultivated in large numbers. It has been observed in England ; and the majority of persons liable to summer-catarrh find it impossible to remain for any length of time in heated rooms where numerous flowers are placed, as at a dinner party, or in rooms opening into conservatories containing flowering plants. It is an acknowledged fact that the sense of smell, like the other faculties, is liable, under certain conditions, to undergo great intensification. Numerous well-authenticated cases have been recorded of persons, evidently in the enjoyment of good health, who have been suddenly and almost inexplicably affected by the smell of some particular flower. Some individuals cannot bear the scent of certain flowers, such as, for instance, roses and geraniums ; and an anecdote is told of a distinguished French general, who, although he had gone through many campaigns with great bravery, always turned pale and even fainted at the odour of roses, if suddenly held just before him.

Hay Fever is more frequently observed in rural districts than in towns, and in the suburbs than in the central parts of large cities ; and it is also more common in localities where grass is chiefly grown than those in which wheat crops are principally cultivated.

The exciting causes of Hay Fever include the following :—

The flowering of grasses, rye, &c. The species of grasses which are considered to be most productive of Hay Fever are the *Anthoxanthum odoratum* (sweet-scented vernal grass,) the *Holcus odoratus* (sweet-scented soft grass,) and the *Lolium perenne* (rye grass.) The *Anthoxanthum odoratum* commences to bloom at the end of May, or in the earlier part of June, according to the state of the weather ; and it continues to flower in the succeeding months of July and August. In connection with this point it is interesting to remark that the peculiar aroma of the grass, at the flowering period, is mainly due to the two first-named species of the *Graminaceæ*. Some years ago, M. Vogel ascertained that benzoic acid exists in both of these grasses, and that their odour is chiefly owing to this circumstance. Now, it is also remarkable that, in chemical factories, the inhalation of the vapour which escapes during the process of

sublimation of benzoic causes considerable irritation of the throat, and violent paroxysms of sneezing and coughing. The question suggests itself here whether Hay Fever may not, in certain cases, be attributed to the irritating effects of the benzoic acid which is liberated from the *Anthoxanthum* and *Holcus* by the agency of the summer heat; seeing that the attacks of Hay Fever are invariably worse during hot, dry weather, while they assume a milder character when the temperature is reduced, or the weather is wet, at which periods the amount of sublimation of the benzoic acid contained in the flowering grass would be less.

The exacerbation of the affection in very warm weather also points to local vascular congestion of the naso—pulmonary mucous membrane as one of the exciting causes of Hay Fever.

Other odours, besides those of grass and hay, have been known to bring on the affection in persons predisposed to it. That of roses, as already mentioned, beans in bloom, nettles, lilac, and elder-flower; while in India a similar complaint occurs among Europeans, in the months of February and March, when the mango and neem (*Melia*) are in blossom. Heat and dust, combined, will bring it on, as many sufferers could testify after making a long journey by rail or on a dusty road, in hot weather.

The agency of increased temperature may be variously explained. The heat having a tendency to lower the tone of the sympathetic and general nervous system, the patient is weakened and made more susceptible to exciting causes; the various functions become disturbed from the same reason; while the heat sets free the odoriferous particles from the grass, flowers, &c., and increases the quantity of dust and other irritant matters floating in the atmosphere.

Various other causes have been suggested, and their agency proved in certain instances, but as this article has already exceeded limits, I must pass on to some practical matters connected with treatment, and content myself with referring any one desirous of fuller information than can be given in the limits of a magazine article to my book on Hay Fever.

In treating this affection, as in the management of other affections, it is worse than useless to attempt to find a specific remedy for all cases, or to treat all by the same medicines; and the only rational method

of relief or cure is by meeting the different symptoms as they arise. The treatment may be divided into two parts, vix.—the prophylactic, having for its object the prevention of the disorder, and the curative, to be adopted when the affection has shown itself.

The former will consist chiefly in the avoidance of the exciting causes of the disorder, such as the aroma of ripe grass or newly made hay, and of strong-smelling flowers ; protection from the heat of the sun, especially about mid-day ; only a moderate amount of out-door exercise, which should be taken either early in the day, or in the evening ; unstimulating diet ; attention to the functions of the skin, &c. Removal to the seaside is not unfrequently beneficial, but cannot always be relied upon ; the cases in which a visit to the seaside will most likely prove advantageous are those in which the febrile or asthmatic symptoms prevail. It is commonly supposed that a removal to the coast is sufficient to produce a cure ; but many persons find themselves disappointed in this respect,—a matter not to be surprised at, when the heat, glare, and dust of many marine resorts are taken into consideration.

When the affection has actually seized upon the patient, we must direct our attention to the different symptoms as they arise,

Warm fomentations, either with water, or decoction of poppies, or marsh-mallow, should be used to relieve the swelling, pain, and irritation of the conjunctivœ and eyelids.

Glycerine, zinc ointment, or a solution of cocaine (that made from the tabloids specially prepared by Burroughs, Wellcome & Co., being the most reliable,) should be applied occasionally to the carunculæ, or to the interior of the nostril by means of a camel's hair brush or a feather. A medical gentleman who consulted me last year informed me that he had experienced considerable relief from painting the inside of the nostril with a solution of nitrate of silver ; but, as a rule, emollient or sedative applications are the best. Various remedial substances can be combined with the glycerine, according to the requirements of individual cases ; its solvent power being remarkably great, while it has the advantage over water as a vehicle for other substances that it adheres better, and is consequently more readily absorbed, than water would be.

The frequent inhalation of the steam of hot water (either simple

or medicated), and of different sedatives in solution in the form of atomized fluid, or spray, is valuable in relieving the unpleasant tickling sensation felt in the mucous membrane of the nose and other air passages. For the administration of medicated spray an inhaler is requisite. Of this apparatus there are numerous forms. The advantages presented by this mode of treatment, whether in Hay Fever, or in throat or chest affections, are:—That the steam inhaled has a soothing and beneficial effect; 2. That the deep, prolonged, and steady inspirations taken by the patient, while inhaling, promote complete expansion of the chest, and help to bring him into a habit of more thoroughly filling the lungs during each act of inspiration; and 3. That by introducing remedies in this way into the system we avoid the disturbance of the digestive functions which often occurs when medicines are taken into the stomach by delicate persons.

Small pieces of ice, dissolved at frequent intervals in the patient's mouth, often succeed more than anything else in obviating the heat, dryness, and tickling sensation experienced in the roof of the mouth, palate, and fauces.

Amongst the best remedies for internal administration are, lobelia, in full doses of the tincture, the preparations of opium, and aconite, the last-named being a most useful medicine, if given in suitable cases, principally the catarrho-febrile. The tincture is the best preparation, but great care must be exercised in its administration. A most convenient means of administering aconite, is the Tabloid Triturate of the tincture, prepared by Burroughs, Wellcome & Co., Snow Hill Buildings, London. Each tabloid, or disk, contains one minim of the tincture. Another very valuable remedy for reducing the febrile symptoms in Hay Fever is Antipyrin (also prepared by Burroughs & Co.,) compressed into tabloids, each containing five grains.

Tobacco smoking sometimes effects wonders, as in ordinary asthma, in diminishing the severity of the paroxysms. The inhalation of the fumes produced by burning paper previously charged with a solution of nitrate of potash, also deserves notice, as being decidedly advantageous in some cases of an asthmatic character.

It would not be amiss here to give a word of caution concerning

the useless, and generally injurious nostrums—cigarettes, smelling-salts, and similar absurd remedies, so eulogistically puffed by their proprietors in the newspapers, but absolutely destitute of remedial properties.

Bromide of potassium, or of ammonium, in full doses, proportioned to the age of the patient, and the intensity of the symptoms, given in some bitter infusion, will prove efficacious when the faucial or bronchial irritability is excessive,

The bitter vegetable tonics, particularly quinine, nux vomica, quassia, and gentian, or the preparations of iron, zinc, or arsenic, may be administered when the patient's constitution requires invigorating treatment.

The various functions should be regulated by appropriate medicines, and in all cases it will be judicious to prescribe an occasional cooling saline. At the same time, the very powerful and lowering depletives recommended by some writers must be carefully shunned, and it should be borne in mind that in a large majority of cases the patient's strength is reduced below its natural condition.

When the eyes are affected, soothing collyria (a lotion containing *liq. plumbi diacetatis* being usually the best) should be frequently applied ; and green, or blue, spectacles should be worn whenever the patient goes out of doors during the day-time. Reading by gas or any other artificial light must be avoided.

The diet should consist of nutritious, plain, easily digested food, with pale ale, sherry, or claret, or soda, potass, seltzer, or lithia water, plain or with whiskey or sherry, at lunch or dinner. Coffee, cocoa, or chocolate are the best fluids at other meals.

Moderate exercise ought to be taken in the open air daily in the morning or evening, in a shady, cool place, at as great a distance as possible from the exciting causes of the affection. The exercise should be either gentle walking, or riding in a vehicle, on roads free from dust. Riding on horseback is often prejudicial to recovery, and I have known many instances in which exercise on horseback either excited an attack of Hay Fever, or rendered the symptoms, previously present in a mild form, much more severe. In fact, any form of violent physical exertion should be guarded against.

Finally, it is a matter of no small importance that the clothing should be easy-fitting, light, and cool.

# HOW TO KEEP COOL!

By L. R. S. Tomalin,

Editor and Translator of Dr. Jaeger's "*Health Culture.*"

This seasonable problem has often been discussed from various points of view, but has never been satisfactorily solved, because the different suggestions which have been made to elucidate it were built upon the sand of surmise instead of on the rock of first principles. A perspiring public has been admonished, among other things, to provide its houses with thicker walls; to keep its windows close, so as not to admit the warmer outside air; to avoid drinking any kind of liquid; to exclude a carnivorous in favour of a frugiferous diet; to wear lighter clothing; to take frequent baths, etc., but the precaution and self-denial inculcated by these precepts have not availed to prevent a huge amount of discomfort so soon as the thermometer reaches something respectable in the shade.

The object of this short article on a subject of very real importance, even in this climate, and of vital moment to our countrymen who reside in India and other warm regions, is to endeavour to establish once for all the scientific principles of "keeping cool."

To this end we must first ascertain how the feeling of excessive bodily heat arises, and why it causes such discomfort. We shall find a clue to the answer to these questions if we reflect that the feeling of excessive heat is absent when the body is naked. Even in the hot chamber of a Turkish Bath nothing of the dire discomfort is felt which accompanies a much lower temperature when we are clothed.

The simple explanation is, that Nature has provided us with an automatic means of regulating the body's temperature, in the pores of the skin. So soon as the body's temperature rises above its normal level the pores are stimulated to throw out an extra quantity of the watery vapour which they continually secrete, and which Nature intends to be evaporated into the outer air. The African, with his naked skin and free action of the pores, suffers no inconvenience from tropical heat; and similarly, when the body is naked in a Turkish Bath, the watery vapour has free egress from the

pores, and, far from causing discomfort, brings a considerable sense of relief. But where, under the ordinary every day and night clothing, the exhaled vapour is cribbed, cabined, and confined, it is condensed and repressed on the skin, and then arises that feeling of oppressive heat which engenders an almost irresistible desire to "throw everything off."

Clearly, therefore, the question for Europeans who are condemned to wear clothing, and who cannot pursue business or pleasure in the airy costume appropriate to a Turkish Bath is, how can the disadvantage of having to cover over the pores be best mitigated, so as to interfere as little as possible with their freedom of action ?

The answer is so simple that, like the Prophet's advice to Naaman to bathe in the River Jordan, it is apt to be rejected with scorn.

Wear Wool, All Wool, and Nothing but Wool ! says Dr. Jaeger, the first man who has made a thorough scientific and practical study of the covering of the human body. Yet there is really nothing new in the advice, except in its application to every day (and night) life. The number of women who had worn All Wool and Nothing but Wool before Dr. Jaeger's Reforms were published were doubtless very few ; but we men had all made trial of it, for playing cricket, one of the most violent forms of exercise, when the process of transpiration is especially profuse—we had all experienced the delightful comfort of "flannels ;" and yet so soon as the cricket was over, we had returned to our every day costume, never dreaming that we might enjoy, during the whole 24 hours, the same comfort, the same facility of keeping cool that we had had while playing cricket !

Pure animal wool, woven into porous web, possesses the following advantages as material for covering the body :—Its horny nature prevents the prompt saturation of the fibre with moisture, and it allows the watery vapour to evaporate through it, retaining none of the noxious odours by which the exhalation is characterised. Being a slow heat-conductor it does not, when damp, feel chilly ; so that, under animal wool, the skin remains dry and warm ; and the function of the pores to relieve the body, by exhalation, from its abnormal heat, is assisted and encouraged by the maintenance of the tempera-

ture of the skin. The maintenance of the skin's temperature is of the highest importance; for, if this be suddenly lowered, the vital function of exhalation is checked, the distribution of the blood is disturbed, and congestion or inflammation is set up in some part to which the blood has been driven from the chilled skin.

One of Dr. Jaeger's principal merits as a reformer of the body's covering is his exposure of the physiological unsuitability of vegetable fibre in any shape as covering-material for the animal body. The commonest form in which vegetable fibre is employed as covering-material for the body are linen and cotton textures, and Dr. Jaeger shows that these possess radical defects for use in clothing and bedding. Linen and cotton are practically impervious to the passage of the skin's exhalation, which they do not allow to evaporate, but with which they at once become saturated. Being ready heat-conductors, they quickly set up a feeling of chill, and everyone who reads these lines will recall the clammy, icy feeling of a wet linen or cotton shirt. Indeed, the danger of damp linen or cotton sheets is so well-known, that any sensible person would rather sleep on the floor than between damp sheets. Further, vegetable fibre absorbs all noxious odour which proceeds from the skin, and becomes quickly deleterious from this cause.

The secret of keeping cool, therefore, is to discard from the clothing and bedding every vestige of vegetable fibre, whether in the shape of the white shirt, the cotton lining or backing to the waistcoat, or the linen sheet. Wear light garments made *wholly* of pure, porous animal wool (beware of the shameless adulteration which is rife in so-called woollen clothing, outer and under!), and keep the coat or jacket buttoned closely to the figure. The habit of throwing open the coat or jacket is due to the necessity felt under the ordinary impervious clothing of opening a passage as far as possible for the exhaled vapour to escape. If the clothing be wholly of porous wool the vapour will evaporate through the closely fitting coat, which at the same time protects from chill through any sudden change of temperature or cold draught. Thus, on common sense principles, we may so clothe ourselves as to allow the automatic apparatus which Nature has established for cooling the body to work almost as freely as if the body were unclothed,

while we are independent of changes of temperature; and, of course, the same principles apply equally or even more strongly to bedding and night attire, which are delightfully cool and comfortable if made *wholly* of pure wool.

One last sentence about ladies' dress. Every word which has here been written concerns women as much as men. They, too, may enjoy the comfort of free action of the skin, and protection from chill, by adopting their dress to all wool. What women suffer in hot weather under their impervious linen, their plaster of Paris corsets, and their cotton or cotton-lined dresses, only themselves can tell. In light woollen underclothing, woollen corset, and woollen dress lined (if at all) with wool, they may be as cool and comfortable, as capable of violent exercise and fatigue, as their brothers whom they so often enviously regard in what has seemed to them the unattainable paradise of flannels.

In conclusion, a motto, to impress on the mind the moral of these remarks :—

**Wear Wool**
**to**
**Keep Cool.**

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## CHEAP FRUIT.

We published in our January number a lengthy article on Fruit, which might be supposed to be enough on the subject for some time. But the importance of an abundant and constant fruit supply in villages and small country towns must plead our excuse for returning to the matter. No dweller in a great town can, in these days, understand without an effort the scarcity of fruit in country places. A whole summer may be passed in a village, some distance from a large town, without the residents seeing, much less tasting, strawberries and raspberries. The present writer, during the past summer, only once or twice had a few of the former offered him. The prices ruling the country districts are not only high, but absurdly so, and for weeks there may be a complete fruit famine, and none whatever to be got.

It makes the mouth of a resident in a small country town water when chancing to walk down the streets of a great city in the fruit season. He has perhaps read that the market is so glutted that it does not pay to gather fruit and send it by rail to the nearest great town. He has heard that plums are rotting, and apples and pears dropping unheeded from the trees, and that the wholesale price is less than it costs to gather and pack the fruit. But unless he chances to be living in the wonderful place where fruit is so abundant, or has a large garden, and the latter few residents with small means have in country towns, his experience is totally different. Perhaps there is no pretence at a market in his neighbourhood, and when he wants fruit he has much difficulty in hearing of anyone with some to dispose of, and when he does alight on such a person he is startled to find that the prices he is asked are very much higher than the newspapers have led him to expect rule the market.

The year before last, on the 28th of August, the present writer found himself in Birmingham : every greengrocer's shop was well stocked with large egg plums, and he saw excellent fruit at two pounds for three half-pence, and one penny a pound. Later in the day he was at Cheltenham, which is near a splendid fruit country, though not itself well supplied with cheap fruit. The same kind of plums were fetching twopence halfpenny the pound ; and in the evening when he reached his residence in a charming and rapidly-growing little town in the loveliest part of Dorset, surrounded by pleasant country, and blest with a climate that for warmth and brightness surpasses anything in the Midlands, egg plums were sixpence a dozen, and not many were to be got even at that price. A few days later, a farmer's wife refused eightpence a dozen for plums, stating that that price did not pay her to grow them. At that very time, in Dorset and Devon towns, small, dark, astringent plums, which in the Birmingham and Gloucester markets no one would have looked at, were being sold, when any could be got, at three-pence and fourpence the pound. This experience was not exceptional, and the present writer has in other years brought large hampers of plums from Birmingham, and found that on getting home he had not wasted labour and money.

How is this ? Surely in these days of agricultural depression and

low prices, fruit should be plentiful and cheap in small country towns, which, in the aggregate, contain a large proportion of the whole population of the kingdom. Why, when complaints are loud that fruit is over-abundant and not worth gathering, should three-fourths of the people of the land hardly see any at all, or only at prohibitive prices?

The explanation is simple. First, in many warm, sheltered, and highly favoured country districts little fruit is grown; second, no conveniences exist for distributing it—in other words for reaching the consumer. The latter has to write to a farmer, enquiring if he will kindly sell him some fruit when it suits his convenience, or he has to set off on a voyage of discovery, finding out who has fruit and when it is likely to be ready; or the seller has to call at house after house, losing time, and perhaps not succeeding in selling her produce. In short, the facilities for bringing consumer and seller together are rude and most imperfect. Fruit, accordingly, is little grown, thus leading to scarcity and correspondingly high charges, that, in their turn, further diminish the demand. We need hardly remind readers that towns like Dorchester, Tewkesbury, and Ledbury, have practically no outside supply; no trains laden with fruit and vegetables come from distant places; no wholesale dealers receive tons of vegetable produce several times a week; such places are self-contained, and the resident finds, to his cost, as we have often done, that he could only buy fruit with difficulty and on rare occasions, while friends in great towns were, perhaps, writing and congratulating him on the abundance of fruit around him, and on his good fortune in being able to buy fine, fresh fruit cheap, when, perhaps, poor fellow! he has hardly seen any fruit, and that, it may be, only in the jealously-guarded garden of some rich friend.

The excuse often heard in the country—that it does not pay to grow fruit—seems, at first, plausible enough, but is really preposterous. Land is so cheap that a piece on which a couple of hundred good-sized trees would grow, would hardly fetch a pound a year rent; and, as fruit-trees get little attention, although they do better when looked after carefully, a fruit-orchard, after the first cost of planting and bringing it into bearing condition is met, is a very small tax on the owner. We doubt whether the fruit-grower

need complain if he can, in an abundant year, get sixpence per dozen pounds for plums, and apples should be still cheaper.

One expedient to meet the difficulty would be building cheap market-houses in many little towns that have nothing of the kind; then on fixed days, the country-women could come in, and residents would know where to find them, and thus, in time, a large and constant supply of cheap fruit would be obtainable, and an impetus to fruit-growing given most beneficial to country people. Another way would be getting fruit direct from wholesale growers and large dealers; but, apart from the difficulty of finding out their addresses, it is curious that the prices charged by them are usually far larger than those obtaining in retail shops in large towns; and when the cost of carriage—often a most formidable item—and the price of the package or basket are added, the small country town resident finds that his fruit is not cheap, and not always particularly good and fresh.

We shall give an instance, that of a Dorset rector, living six miles from an important junction. This gentleman could not buy fruit in his own neighbourhood, and, knowing that fruit was cheap in the large towns, he looked about for any addresses of fruit-dealers he could find. At last he heard of a grower in Worcestershire, and accordingly wrote for a hamper of plums, which were to travel in the cheapest possible way. The fruit came in due course; the price charged was reasonable, and the quality excellent. At the station the rector found that no carriage was to be paid. Alas! three months later, a railway bill reached him, and then it turned out that the hamper, having been marked—"Fruit—Perishable"—had come by passenger train, and the freight was actually more than the price of the fruit.

In that very district, inferior apples often command in the early autumn, 2s. 8d. per peck, while fruit of incomparably better quality sells at less than half that figure in Birmingham and Sheffield.

Cheapness and dearness are relative terms though; let Hugh Miller teach us on that point:—"A humble fruit-shop stood temptingly open among the naileries in the outer skirts of Hales Owen, and I stepped in to purchase a few pears: a sixpence worth would have been by no means an overstock in Scotland to one who had to travel

several miles up hill on a warm day ; and so I asked for no less here. The fruitman began to fill a capacious oaken measure, much like what in Scotland we should term a meal lippy, and to fill up the fruit over it in a heap. 'How much is that'? I asked. 'Why, only fivepenn'orth,' replied the man ; 'but I'll give thee the other penn'orth arter.' 'No, no, stop,' said I, 'give me just the half of fivepenn'orth ; you are much more liberal here than the fruit-dealers in my own country ; and I find that half will be quite as much as I can manage.' This incident reminded me of the one so good humouredly told by Franklin. When fresh from Boston where food was comparatively high, he went into a baker's shop in Philadelphia to purchase threepence worth of bread on which to breakfast, and received to his astonishment for the money, three huge loaves, two of which he had to carry through the streets stuck under his arms, while satiating his hunger to the full on the third."

An enterprising Dorset grocer tells us that of late years he has imported from Worcestershire baskets of fruit : the distance to his residence is 132 miles. With what result ? First, he has to ask customers if they will take some when it comes ; then, when he has filled up his order he sends for the fruit. The wholesale price is generally rather over one penny a pound. He has, moreover, to pay over one penny a pound carriage, and in addition he requires his profit. When the customer gets the fruit it is three or fourpence a pound. Last year in the markets at Gloucester baskets containing 70 pounds of good plums were fetching 1s. 6d., and greengages were a drug in the market at five shillings. Could not railway companies grant special rates to the southern junctions : say one, or at most two, shillings a pot. In that way, and in that alone, a splendid market would be opened up to Worcestershire growers : at present the fruit trade is practically strangled.

AN OLD OXONIAN.

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PISCICULTURE.—The propagation of coarse fish continues to be carried out on a large scale at the Midland Counties Fish Culture Establishment. Mr. William Burgess has laid down many millions of perch, carp, roach, and dace ova, and the fry are being transferred to the ponds as fast as they become incubated.

# TOTAL ABSTINENCE PHILOSOPHICALLY CONSIDERED.

By Dr. A. J. H. Crespi, of Wimborne,
Late Editor of the *Sanitary Review*.

Having attended hundreds of temperance meetings, spoken at scores, listened to many of the foremost temperance advocates of the day, and pondered over the question, and all this—less to the advantage of my professional practice and prospects than, I humbly hope, to that of the temperance cause—I trust that without appearance of presumption I may pretend to know something of the grounds on which thoughtful abstainers rest their arguments. As a preliminary let me remark that the earnest but often intolerant and illogical speeches sometimes heard on the temperance platform, from good but very inferior men, do not represent the opinions of the distinguished leaders of the movement. I do not defend those speeches, but I contend that their extravagances, necessarily offensive to listeners of culture, are not unmixed evils. Those speeches are on a level with the understanding of the rank and file present at such meetings. Many a Churchman, who points out a thousand blunders in Methodist sermons, admits, when pressed, that those sermons have done incalculable good, and are better appreciated by the peasantry and the labourers, who mostly flock to chapels, than would be the magnificent dissertations of Bishop Lightfoot and the impassioned appeals of Bishop Boyd Carpenter. I remember listening with deep attention to Bishop Wilberforce, when as a very young man I heard him during my Oxford days, but I have actually met with educated Dissenters, accustomed to the more forcible logic of the chapel and the violent gesticulations, which there pass for eloquence and "talent," complain that the great Bishop of Winchester was dull and monotonous. No educated man who has tried to interest a typical temperance audience can fail to notice how imperfectly he generally succeeds, and his contempt for his hearers is increased when he listens to the tumultuous applause, which rewards the noisy and coursely witty declamation of some man, whose ignorance and want of precision of thought and language permit him to rattle on for an hour mouthing platitudes as though inspirations, and hazarding

assertions that will not bear a moment's investigation. But the noisy temperance apostle is after all the more successful speaker. His task is to frighten obtuse workingmen from the public house and compel them to keep sober, and he succeeds. Successful oratory consists in carrying one's point, and the speaker who accomplishes that is the better man, at least for the time being. The objections to temperance gatherings, often urged by the highly educated, would vanish were they to take opportunities of listening to Archdeacon Farrar, Bishop Temple, Dr. Richardson, and, though I do not place him on a level with them, nor would he claim that distinction, the Rev. Owen Luttrel Mansel, M.A., Rector of Church Knowle, Dorset, the greatly esteemed President of the Dorset and Southern Counties' Temperance Association. Mr. Mansel has studied the poor: he likes them, honours them, and lives among them: he knows their capabilities and temptations, and while his speeches are distinguished by earnestness and sound common-sense, he scrupulously avoids extravagant assertions and misstatements. Yet to his honour and to theirs, no educated speaker commands larger and more attentive audiences in the South-West of the Kingdom, so that it is possible though most certainly very difficult for a gentleman to address working-class audiences with success.

The most powerful and valuable exposition of temperance principles from the pen of a great master of forcible description is Danesbury House, one of Mrs. Henry Wood's most successful novels. Unfortunately for its circulation among total abstainers there is no cant, no advertising of one organisation at the expense of another: perhaps, too, the moderation of tone, the fidelity to life, and the beauty of language are beyond the appreciation of most total abstainers. I have found that few of them have ever seen or read the book, and of those who have, not all appreciate its spirit or see its value. But had the work been coarse, had it introduced vulgar teetotal harangues, had it sung the praises of one organisation and denounced another, then its supporters would have been legion Cant and imposture, jealousy and rivalry make themselves felt in every part of temperance work, and this may possibly account for the low opinion, which the more influential classes have of a reform that, whatever the faults of some of its supporters, deserves cordial and generous sympathy and help.

It grieves me to notice how imperfectly the educated classes understand the motives and follow the arguments of total abstainers "Of all investments of time," wrote the late Mark Pattison, "writing controversy is one of the most wasteful: your adversary is confirmed by what you say in his own opinion," and, perhaps my defence of Total Abstinence will strengthen the opposition of its enemies and arm them with fresh weapons. No form of opposition is at the same time so effective, and withal so disingenuous and unworthy of thoughtful and right-thinking opponents, as crediting an adversary with opinions he does not hold and then exposing their fallacy. The hostility to Total Abstinence is however not always captious and ungenerous. In many cases it comes from ignorance, in others it rests on garbled reports of third rate speeches and papers which have been put together, with the best motives, but which no more represent the vital points at issue than would a local preacher's exposition of the cardinal doctrines of Christianity be true to the reality. We do not hold that it is wicked to drink a glass of ale, and that the Bible inculcates Total Abstinence on all, and that the moderate drinker is worse than the drunkard. Such assertions I have heard many times from temperance speakers of a certain sort, but I have regarded them with as much disfavour as contentions on the part of evangelical clergymen that Canon Knox Little and the late Mr. Bennett, of Frome, and Canon Pusey were in the secret pay of Rome.

Our position does not admit of clear exposition, because it is defended by and principally consists of many weak positions. Lawyers hold it to be foreign to the most sacred traditions of English jurisprudence to build up a charge of high treason on a number of weak pleas—any one of which by itself would be inadequate—but which in the aggregate are conclusive. But in matters of conduct it is otherwise, and less proof is needed. Men are often induced to adopt a certain course by putting together many weak reasons on the one side and balancing them against a smaller number of still weaker reasons on the other. Could we prove that Christianity commanded all men to abstain from alcohol as it undoubtedly does from lying and theft: could we show that in the smallest doses alcohol was always a rank poison, like belladonna and

strychnine, we should make alcohol over to the doctors, and banish it from the table; our cause would then be triumphant and the temperance agitation over.

The one conclusive and crowning argument in support of Total Abstinance is the misery, extravagance, and disease due to intemperance. The ravages of excess are not confined to one country, still less to one class. It is peculiarly difficult to estimate with accuracy how many lives are annually lost; how many crimes committed, and how much suffering arises through drink. But every clergyman, lawyer, judge, policeman, doctor, and guardian knows that intemperance is a great and crying evil. The tone of society is improving relatively and absolutely. Less money is spent on drink, and there is an earnest of better things. But, at present, there is still enough sin and suffering in the United Kingdom due to drink to fill the stoutest heart with dismay and appal the least sympathetic. It is no use contending that education and culture will rectify this. The masses are not educated, moral and cultured, and will not be so in our time. Every medical man knows that not even the hallowing surroundings of clerical life, not the lofty motives, which should actuate every clergyman, not the pressure of public opinion are enough to prevent intemperance among the clergy. As for other classes, fortunate must that doctor be, who has reached middle life, and not known case after case, in all grades, from the highest to the lowest: and his own profession furnishes a large contingent of drunkards. The outside world knows little of what is going on in the sacred privacy of many a privileged and fortunate home; but, none the less surely are tragedies being enacted that for pathos and suffering could not be matched by anything in fiction. What secrets the doctor could reveal were not his lips sealed, when the grave closes over some of his clients—intemperance, vice, and depravity; and disease due to causes little suspected by the world. To go to any medical gathering and argue that intemperance was the vice of the poor and ignorant alone would provoke disapproval from every one present. Indeed no statement so untrue would be hazarded by the youngest and least experienced practitioner; and yet I have heard venerable clergymen and influential chairmen state with dignified impressiveness that education had banished intemperance

from polite society, and I have thought of those bitter words of Lord Chancellor Clarendon, "Clergymen who understand the least and take the worst measure of human affairs of all mankind that can read and write." A highly respectable, country town surgeon, once said, standing in the market square of the place where he had passed over 30 years in practice, that he had known at least one death through intemperance in every one of the many good houses and shops he could see from the spot where he was standing. This man was no "fanatical" teetotaler. Simply a plain matter-of-fact person with no romance in his disposition, but highly educated, well qualified as far as the possession of diplomas went, and thoroughly informed as to the circumstances of his neighbours. A thousand other elderly surgeons could, *mutatis mutandis*, endorse his testimony. No: intemperance is *not* confined to any class, age, or district: it shows itself, if looked for, everywhere, and remains the most potent cause of disease, suffering, and sin which we have in our midst. It would weary the reader to adduce proofs of my assertion. Not a day passes that the press does not contain solemn warnings from men in high station, whose lightest word carries weight, and who are not committed to the temperance movement; nay, are often suspicious of it, and sometimes actually hostile to it. Were not denunciations of intemperance so solemn, they would, from their very frequency, be wearisome, and many a man could echo the words of one of the best-known Dorset rectors of the day—"I am sick of the temperance question, and oh! so tired of speeches on the subject: but my duty compels me to attend meetings and to take the chair at them." In return for all this crime, suffering, and poverty, what have we? A little dear bought pleasure. That is the sting. Were this intemperance made up for by great and active enjoyment: were drinking alcoholic beverages a necessity of existence, it would be totally different. We look with equanimity on loss of life at sea, in mines and in factories because the world gains in consequence of the dangerous industries carried on. Every miner, collier, or sailor dying in the discharge of his duty we mourn over, but we honour him because he has died at his post, increasing the enjoyment of others. But what has the drunkard accomplished? Nothing beyond his own ruin, and he causes indescribable sorrow and loss to others.

Lord Bramwell has made a good deal too much of the pleasure that millions of persons derive from their daily moderate allowance of alcohol. Granting that their enjoyment is real, and on that point I cannot speak, as I have been a rigid total abstainer all my life, is that enjoyment for an instant to be set in the balance against the misery of excess? Hundreds of thousands of men, not necessarily life long abstainers, pass year after year enjoying existence, living honest, laborious and successful lives, neither taking stimulants nor feeling the want of them. Alcoholic beverages no more enter into their calcalations than does the pleasure of smoking into that of the non-smoker. There are things the absence of which from life is an active and constant source of sorrow, for example—shortness of money to the man of culture and refinement, and the longing for foreign travel to the mind stored with varied knowledge of distant lands. In my own case to be the master of ten unappropriated sovereigns and to see the City of Flowers and explore the Eternal City, are pleasures that I never expect to enjoy, and I acutely feel the want of them. The pleasure of taking wine can hardly intensify the joy of life, invest life with fresh charms, and make up for serious disappointment and unrest. Most people who take stimulants rate the pleasures of self-indulgence very low, and are offended if described as liking alcoholic beverages. Even the wretched victim of self-indulgence seldom talks of pleasure: and often in his helpless folly utters lamentations that he is powerless to free himself from the habit, which gives him little pleasure, but which it surpasses his shattered strength and feeble will to break himself of. When too late the pleasures of alcohol are succeeded by the pains of alcohol, the dreadful character of the vice is seen in all its naked hideousness.

We also defend Total Abstinence on account of its absolute safety. There may be nothing wrong in drinking a glass of beer a day, and a small amount of pleasure may be obtained thereby; but as surely as the sun is the source of light and life, so surely do drunkards come from the ranks of moderate drinkers. No one can tell who is safe; no one can say when and where danger begins. Most men are never in danger: many pass through life neither better nor worse than their neighbours, and with no special temptation to

excess ; but, whether from imperfection of temper or education or from inherited weakness, others, equally fortunate apparently in their surroundings, go wrong. Let the man who has a drunken wife, or the son who has watched over a besotted mother, say whether intemperance is a light matter. Children do not easily form the habit of taking beer and spirits, any more than they readily take to smoking. It requires no effort on their part to persevere in the path of Total Abstinence ; and then, as long as they remain in it, they are absolutely safe, at any rate from the terrible vice of drunkenness.

Next to personal safety may be placed the power which teetotalism gives in influencing and reclaiming others. Let any minister of religion try to reform a self-indulgent sinner, and let him notice how seldom his efforts are successful unless he is known to be a Total Abstainer, and he will learn a useful lesson. Hundreds of the clergy have taken up temperance work and have signally failed until they have put their hand to the plough in good earnest. Once admit that intemperance is among the greatest evils of the day, once determine to labour to counteract it, and the only possible course remaining is to sign the pledge. Then the clergyman's hands are mightily strengthened, always providing that he does not, like many of his brethren, let it be known that he regards himself as a martyr. In that case his connexion with the temperance cause will not aid him, and the too probable ridicule and hostility of his wife and family will be turned against him, for they soon get known. The rapid spread of temperance principles among the clergy, though not always from lofty and pure motives, and not always seconded by the practice of their families, has done very much to make Total Abstinence respectable. When the clergyman takes the matter up earnestly, consistently, and generously, and receives the support of his family, how much good he does, how many earnest fellow workers he collects around him !

The dietetic value of stimulants, another stronghold of the moderate drinker, is shown by recent scientific investigations to be so small, that without actually denying that alcohol has some nutritious properties, it is beyond all question that it is preposterously expensive as a food. To buy stimulants for their dietetic properties is in the highest degree imprudent and extravagant.

The therapeutic value of stimulants is also small, though that part of the matter need not detain us. If alcohol is a valuable drug, a point not absolutely settled, that is no valid argument for defending its daily use by millions, who are not ill. Moreover we most positively contend that in many instances in which alcohol is administered as a drug, and in strict accordance with medical custom, its place could be taken with equal certainty and smaller temptation by less objectionable agents.

As stimulants, pure and simple, alcohol has less to recommend it than tea, coffee, or water, nor can it claim special consideration as an economizer of ordinary foods.

In short, the conclusion is forced upon us that alcoholic beverages have little to recommend them, even in the arguments of their supporters, while the objections to their use reach dimensions that are simply appalling, and which grow in weight the longer they are considered.

The subjoined extract is interesting: part is from Baron Liebig, and though open to criticism, is not out of place; the remainder is from Dr. Milner Fothergill, a well-known physician, whose respect for brandy is such that he told me yesterday that he had ordered as much as three pints of it in twenty-four hours for a patient without killing him. Perhaps there is a little contradiction in denouncing alcohol as he does in a portion of the following quotations, and then prescribing it in tremendous doses: but I must leave the worthy doctor to reconcile his practice with his theory. Curious! yesterday morning at half past eight I was reading his excellent paper on "Work and Overwork," from which I made the extract in question, and a few hours later in the most unexpected manner found myself sitting in front of him in a carriage a long way off, and then he gave me a most refreshing harangue on the value of brandy as a drug; which taught me that modern views as to the imprudence and danger of ordering brandy medicinally have not penetrated into every Metropolitan physician's consulting rooms. Would to Heaven that they had: then our labours would be easier.

"The consumption of ardent alcoholic drinks by such populations is notorious. The monotony of their labour is answerable to some extent for the craving after alcoholic stimulants; that must not be overlooked. But it is not the complete nor full answer to the ques-

tion, Why do these town populations crave after spirits? Beer is the drink *par excellence* of rustics, of the inhabitants of small towns, and even of the Cockney who follows light pursuits. Liebig has something to say on this subject well worthy of deep consideration—'The use of spirits is not the cause but the effect of poverty. It is an exception from the rule when a well-fed man becomes a spirit drinker. On the other hand, when the labourer earns by his work less than is required to provide the amount of food which is indispensable in order to restore fully his working power, an unyielding, inexorable law or necessity compels him to have recourse to spirits. He must work, but, in consequence of insufficient food, a certain portion of his working power is daily wanting. Spirits, by their action on the nerves, enable him to make up the deficient power *at the expense of his body*, to consume to-day that quantity which ought naturally to have been employed a day later.' His physiological capital is clearly being exhausted, and it is no wonder, that under such circumstances, he dies comparatively early and certainly prematurely. Not only is such a plan essentially and radically bad, but alcohol is a terribly dear form of food. Alcohol in such concentrated form is a potent aid to the already existing tendency to tissue-degeneration. When overwork calls in alcohol to its help, the unholy alliance quickly works the most disastrous results, and brings the organism swiftly to general decay. Even when the evil results of the deadly combination are not so marked, general deterioration is manifest in impaired power of labour, in inferior work, in lessened hours of toil. The tendency is to saunter away working hours in the ale house; partly because work is found so irksome that it is pleasant to do nothing—perhaps worse than nothing; partly because the capacity to labour has been undermined. Of course here again there is not uniformity; one organism yields more readily than another. Toil and alcohol, and sometimes the alcohol with very little toil, soon reduce one man to the level of a social pariah; while in another case a hale old man will be found who works hard every day—'never misses any time,' his fellow workmen say—yet who drinks daily an amount of spirits which would soon tell sorely on an average person. But such a case does not militate against the general soundness of the statement that overwork, combined with alcohol, is a sure and certain road to body-ruin."

# THE RESTORATION OF PERSONS
## APPARENTLY DEAD FROM DROWNING.*

So many fatalities through drowning occur every summer that the following description of the Silvester method of treatment, to be adopted in all cases of persons who are apparently dead from submersion, will be in season. In many of the fatal instances of drowning through accidents in bathing and boating, the sad results might have been averted if prompt measures had been resorted to as soon as the immersed individuals had been got out of the water. The Silvester method is based upon physiological grounds, and is that which is recommended by the Royal Humane Society.

GENERAL DIRECTIONS.—Send for Medical assistance, Blankets, and Dry Clothing, but proceed to treat the patient instantly.

The points to be aimed at are—first, and immediately, the restoration of breathing ; and secondly, after breathing is restored, the promotion of warmth and circulation.

The efforts to restore life must be persevered in until the arrival of medical assistance, or until the pulse and breathing have ceased for an hour.

### DR. H. R. SILVESTER'S METHOD OF RESTORING NATURAL BREATHING.

RULE 1.—*To adjust the Patient's position.*—Place the Patient on his back on a flat surface, inclined a little from the feet upwards ; raise and support the head and shoulders on a small firm cushion or folded article of dress, placed under the shoulder blades. Remove all tight clothing from about the neck and chest.

RULE 2.—*To maintain a Free Entrance of Air into the Windpipe.*—Cleanse the mouth and nostrils ; open the mouth : draw forward the Patient's tongue, and keep it forward ; an elastic band over the tongue and under the chin will answer this purpose.

RULE 3.—*To imitate the Movements of Breathing.*

*First.*—INDUCE INSPIRATION.—Place yourself at the head of the Patient, grasp his arms, raise them upwards by the sides of his head, stretch them steadily but gently upwards, for two seconds.

*Taken from the SEA BATHING GUIDE. 15th Annual Edition ; published by Beaumont & Co., 6, Wells Street, Oxford Street, W.—Price 3d.

[*By this means fresh air is drawn into the lungs by raising the Ribs.*—See Figure I.—INSPIRATION.]

FIG. 1.

*Secondly.*—INDUCE EXPIRATION.—Immediately turn down the Patient's arms, and press them firmly but gently downwards against the sides of his chest, for two seconds.

[*By this means foul air is expelled from the lungs by depressing the Ribs.*—See Figure II.—EXPIRATION.]

FIG. 2.

*Thirdly.*—CONTINUE THESE MOVEMENTS.—Repeat these measures alternately, deliberately, and perseveringly, fifteen times in a minute, until a spontaneous effort to respire be perceived.

[*By this means an exchange of air is produced in the lungs similar to that effected by natural respiration.*]

When a spontaneous effort to respire is perceived cease to imitate the movements of Breathing, and proceed to induce circulation and warmth (*as below*).

RULE 4.—*To excite Respiration.*—During the employment of the above method excite the nostrils with snuff or smelling salts, or tickle the throat with a feather. Rub the chest and face briskly, and dash cold and hot water alternately on them. Friction of the limbs and body with dry flannel or clothes should be had recourse to. When there is proof of returning respiration, the individual may be placed in a warm bath, the movements of the arms above described being continued until respiration is fully restored. Raise the body in twenty seconds to a sitting position, dash cold water against the chest and face, and pass ammonia under the nose. Should a galvanic apparatus be at hand, apply the sponges to the region of the diaphragm and heart.

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## TREATMENT AFTER NATURAL BREATHING HAS BEEN RESTORED.

*To induce Circulation and Warmth.*—Wrap the Patient in dry blankets, and rub the limbs upwards energetically. Promote the warmth of the body by hot flannels, bottles or bladders of hot water, or heated bricks, to the pit of the stomach, the armpits, and to the soles of the feet.

On the restoration of life, when the power of swallowing has returned, a teaspoonful of warm water, small quantities of wine, warm brandy and water, or coffee should be given. The Patient should be kept in bed, and a disposition to sleep encouraged. During reaction large mustard plasters to the chest and below the shoulders will greatly relieve the distressed breathing.

*Note.*—In all cases of prolonged immersion in cold water, when the breathing continues, a warm bath should be employed to restore the temperature.

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This treatment should be persevered in for even three or four hours, if the signs of death are not unmistakably present. It is an erroneous

opinion that persons are irrecoverable because life does not soon make its appearance; and cases have come under the notice of the Royal Humane Society of successful results having been attained after even five hours' perseverance.

The signs which generally indicate death are as follows:—There is no breathing nor heart's action; the eyelids are usually half-closed; the pupils dilated; the jaws clenched; the fingers semi-contracted; the tongue protrudes between the teeth; and the mouth and nostrils are covered with a frothy mucus. Coldness and pallor of the surface of the body increase.

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# BRITISH HEALTH RESORTS.

## No. 8.—LOWESTOFT.

Some few years ago, when the Great Eastern Railway Company commenced to supply sea water to the Metropolis and towns on their line, an amusing story was told of an old lady who, having had Lowestoft suggested to her as a pleasant seaside resort, exclaimed, "Oh! not there; I like a place where there is a good, full sea." Evidently, the poor old creature had been misled by the Company's announcements, and the numerous kegs of sea-water lying about their stations, into the erroneous idea that the Company were ruthlessly bent upon emptying the North Sea at that particular spot. Had she been at Lowestoft a few weeks back, she would not only have admitted her mistake, but would have further asserted that the sea came rolling in in such vigour and volume that the Company must have abandoned their design of leaving Lowestoft high and dry.

Speaking of this Company reminds us of the vainglorious saying attributed to the third Napoleon, when he had reach his greatest height of self-esteem, and foolishly imagined that France and himself (as head of the Empire) were as one; yet not many years afterwards he toppled to his fall like a modern Humpty Dumpty. With more truth the Great Eastern Railway Company might be said to be Lowestoft. The important works on the harbour and elsewhere commenced in 1845, by Samuel Morton Peto, and continued by the Great Eastern Railway Company up to the present date have lead to such a development that the population of Lowe-

stoft, which in 1841 was under 5,000, is now estimated to be 30,000. Mr. Peto, who subsequently received a baronetcy and became Sir S. M. Peto, went to reside at Somerleyton Hall, near Lowestoft, in 1844, and to his exertions the place owes not only the harbour and the railway, but the handsome sea frontage, comprising the Esplanade and the Marine Parade, not surpassed by anything of the kind in the Kingdom. To the rapid growth of the town under Peto's fostering directions may be attributed another great advantage, viz., that the regularity and uniformity of the streets and houses constituting the modern portion of the place, South Lowestoft, have given it an air of neatness and cleanliness, making it more like Leamington or Cheltenham than what was, until a comparatively recent period, merely a fishing-port.

From our dwelling thus upon modern Lowestoft, it must not be supposed that the town has no history. Few places can show greater antiquity. The Romans, those indefatigable conquerors and civilisers, occupied various stations in the Eastern parts of England, and one, called by them Garionanum—which is now the site of the ruins of Burgh Castle—is in the immediate vicinity of Lowestoft. Touching these same Romans, it is probable that the East coast was that part of our island with which they first made acquaintance. In a very scholarly work, entitled "Julius Cæsar: did he cross the Channel?" written by the,Rev. Scott F. Surtees, that gentleman, in a most able and powerfully convincing manner, demonstrated from Cæsar's own Commentaries and other great authorities, that Cæsar did not invade England by way of the Channel; but that, having completed his campaign on the Rhine, he passed over from thence to the Britannic Island, and landed at Weybourne, near Cromer, in Norfolk. Mr. Surtees' book was published more than twenty years ago, and it is very difficult to get. If any of our readers can come across it, however, we strongly recommend them to peruse it; every page of it overflows with evidences of erudite research. After the Romans, the Danes—similarly a conquering, though a far less civilising, race—devoted their attention to East Anglia to an extent which must have constituted, in the language of Mr. Mantalini, immortalised in *Nicholas Nickleby*, "a demnition nuisance" to its peaceful inhabitants; and one of its Danish visitors, Lothen, about 1047, gave the

name Lothingland to the Hundred of Suffolk, in which Lowestoft is situated.

Geographically, Lowestoft is the most easternmost town in England—Ness Point, near which the Low Lighthouse (so-called to distinguish it from the High Lighthouse) stands, being the most eastern point of England—a circumstance which has lead to a poetic effusion, affirming that Lowestoft—

> "First of all Old England's busy towns
> Whispers its orisons, and greets the rising morn."

As to its climatic conditions, the annual rainfall is stated by Mr. S. H. Miller, F.R M.S., to be 30-inches ; and the subsoil is gravelly and sandy, and consequently porous, so that surface moisture is soon carried away.

The harbour is formed by two fine piers, extending 1,300 feet into the sea, and enclosing a very large area of water ; the north pier is used for business purposes, chiefly connected with the thriving fishing trade, while the south pier serves as an admirable promenade. There is always a considerable quantity of shipping in the harbour, making it a never-failing source of interest to visitors. The docks in course of construction will add largely to the maritine facilities afforded at Lowestoft, and a double line of railway running adjacent to the docks and new fish-market enables fish to be promptly transmitted to all parts of the country. Some notion may be formed of the extent and amount of property concerned in this industry, when it is mentioned that the fishing-fleet of Lowestoft numbers more than 700 vessels, averaging in cost from £1,000 upwards, each carrying a crew of about ten persons. In two days of November there were landed at the fish market 2,300 lasts of herrings, making, at the rate of 13,200 per last, a total of 30,360,000. In addition to herrings, a large trade is done in mackerel, codfish, haddocks, soles, turbots, whitings, and mullets.

The advantageous marine position of Lowestoft makes it the resort, during the season, of numberless pleasure-craft, and the Norfolk and Suffolk Yacht Club House, close to the south pier, is one of the must favourite rendezvous of yachtsmen on the East coast.

Lying inland, and within a few minutes by rail of Lowestoft, and connected with the River Waveney, by an artificial canal, is Oulton

Broad, one of those lakes for which this district is famous. This splendid piece of water is more than one hundred acres in extent, and, having been carefully preserved since 1877, under the Norfolk and Suffolk Fisheries' Act, it abounds with many kinds of fresh-water fish, especially pike, (often very large, and over 20 lbs. in weight), perch, roach, bream, rudd, and carp ; together with large shoals of grey mullet, which, in the summer find their way up the Yare, from the sea at Yarmouth.

The numerous expanses of fresh water lying some miles inland from Lowestoft and Yarmouth form what are called the "Broads." The principal of these are Wroxham, Ormesby, Filby, Surlingham, Rollesby, Hickling, Whiteslea, Somerton, Marsham, Heigham, Salhouse, Ranworth, Rockland, South Walsham, and Burton, in addition to Oulton, already mentioned. For charming scenery, healthful recreation, and thorough change, especially in the case of persons who have been pent up in towns and cities, there is no part of England superior to the "Broads" of Norfolk and Suffolk.

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## No. 9.—WOODHALL SPA.

LINCOLNSHIRE ! ! ! Who ever heard of a health resort amid fens and treeless plains ? There is something incongruous in the connection. Miles upon miles of dull unlovely country, intersected by innumerable artificial water courses, and here and there enlivened by a small village or a little-known market town. That, at any rate, is the common impression, and it is to correct it that we take pen in hand. Of course the country is flat, and there is no use denying it, and woods are scarce ; but the land is marvellously rich and verdant, and strange though it will sound, there is a peculiar beauty in Lincolnshire, which, in a different fashion, compares not unfavourably with the undulating fields and wooded heights of the South-West. The neighbourhood of Woodhall Spa is not ugly, nay in its quiet English way, it is decidedly pretty, and the longer one stays in the neighbourhood the greater does one appreciate it.

Woodhall Spa stands half way between Lincoln and Boston, and is a mile and a half from Kirkstead Station, and not very far from

Tattershall Tower, which with the exception of Layer Marney Tower, in Essex, is the finest specimen of ancient brickwork extant in this country. This noble structure dates from 1450 and dominates the level fen country : it is a landmark for many a mile, something like the glorious towers of Lincoln to the north, or the vast mass of Boston to the south. To be within easy reach of such beautiful memorials of the past is enough to give Woodhall distinction, and to attract visitors. For half a lifetime invalids have flocked to the little place, and its baths, rich in bromine and iodine, have given fresh life and health to many a shattered constitution and worn out frame. Once the country was described as undulating and hilly, but that must have been by some person, who used a spirit level to test the character of the ground. The present managers do not claim that the district is undulating. A couple of years ago a committee of five gentlemen set to work to push the place and develop it, and their influence, for among them are the Right Honourable Edward Stanhope and Mr. Henry Chaplin, has been sufficient to accomplish wonders. A town is rapidly springing up, roads are being cut in all directions, and the eye catches on fifty notice boards "This site is sold," while strange indeed in sleepy old England, and rather reminding one of American energy, two huge blocks of shops containing in the aggregate thirty or more are being built. Of course Woodhall station is being enlarged, and additional lines of rails will be laid down at once. The appearance of the town is singularly pretty and attractive—a long, broad, straight street, parallel to the railway, and fringed by large and handsome houses resplendently scarlet, with red tile roofs, and the upper storey overhanging the lower, somewhat in the so-called Swiss-cottage fashion, give a unique *tout ensemble*. A new town, spick and span, is something not often seen in England, except as the result of the development of some industry, and then the houses are of the shabbiest and meanest, and soon become encrusted with dirt and smoke. But at Woodhall there is no industry beyond that of curing the sick, and for this purpose cleanliness is essential. The place is a vast home for invalids, and the plan is uniform and is being carried out regardless of expense. Space is unlimited, and there is room for some thousands of additional houses. The opportunity is exceptional,

and is one of which the most should be made—a new town on an unoccupied site, and the very flatness of the ground is an advantage in cutting and laying out new streets.

But Woodhall is not treeless, and in addition to some woods on the horizon, has an extensive larch plantation of some luxuriance and great picturesqueness surrounding the hotel, which shelters the locality from keen winds and gives a character of its own to the place. In addition to the new shops, and by the way there are only two or three little old shops and a dozen moderately ancient houses in the place, the hotel is one of the chief features. It stands in beautiful grounds, tastefully laid out and exquisitely kept: it is on a very large scale, and can accommodate a hundred visitors. Last summer it could only receive half that number, and was more than full, but this spring vast additions have been made, and still the complaint is heard that more room is needed, and the proprietor expects to have his pick during the season, indeed he is already more than full: he has a staff of thirty-two assistants.

Close to the hotel and only separated by a broad carriage drive stand the baths and pump room, the *raison d'être* of Woodhall. The shaft of the famous bromo-iodine well was originally sunk to find coal, and it is said that £20,000 were thrown away in the vain attempts then made. The borers were much inconvenienced by the inrush of water, and much care and expense were needed to cut off that inflow. But good often comes from what looks like evil: the shaft went down 1,000 feet, coal was not found but the water was discovered to be richly charged with bromine and iodine, and hence the fame of the Spa. This spring the baths have been enormously enlarged: a good pump room has been erected with a gallery for a band, and during the season there will be music, in fine weather from the band stand outside near the hotel, in wet from the gallery. Major Davis, of Bath, has had the management of the fittings intrusted to him, and that gentleman has been brilliantly successful. He has shown his usual exquisite taste, and has adorned Woodhall with baths that are an ornament to it, and which must attract still larger numbers of invalids. The bathing places are large and handsome, and are provided with everything which modern scientific ingenuity can devise—douche, sitz, needle, spray,

and vapour baths, cranes to lower the more helpless into the water and to lift them out: aluminium fittings of the most tasteful design and costly make, perfect ventilation, and complete heating apparatus throughout: dressing rooms handsomely fitted with couches; hot presses for the linen, and in addition the attendants are trained to give in suitable cases massage. Arrangements have also been made for the pine treatment. The water too is often drunk, and enormous quantities are being sent to all parts of the country—a recent purchase being five truck loads of new bottles to receive the precious fluid. A table stands in the pump room liberally provided with tumblers and bottles containing bromo-iodine water.

To make the place still more perfect one of the prettiest old houses in the town, a handsome square cottage close to the Pump Room, is set apart as the residence of Dr. C. J. Williams, the able medical superintendent and general manager. This gentleman has seen much of the world: he is a perfect host, and has a breadth of sympathy and depth of feeling which might make one suspect that he was not an Englishman; these traits are accounted for by long residence among the kind-hearted and intelligent people of Germany, and perhaps it may be in great measure owing to his acquaintance with foreign spas that so much attention has been paid to amusements, sheltered walks, screens to cut off the wind from the terraces, and music. An Englishman would hardly think of such matters, through all the world over it would be hard to find a more inveterate grumbler; but Dr. Williams has not grumbled; he has worked, and, therefore, he is the right man in the right place, and he has ably seconded the proprietors.

The official opening of the Spa for the season took place on Tuesday, May 22nd, and on the occasion special trains ran from King's Cross and Lincoln. The Syndicate took the opportunity to issue 260 invitations, or thereabouts, to eminent men of all professions. But the place was full before the opening, so that the latter was little more than an opportunity of showing hospitality and courteous attention to a large number of distinguished public men. As we walked about the roads, looked at the new villas and watched the vast preparations for more houses in all directions, the thought occurred to us that we were present at the birth of a place that

might some day rank with Cheltenham, Scarborough, and Leamington, a place that will count its residents in thousands. We wish Woodhall great prosperity, not only for the sake of the invalids who are going to it, but on account of the energy of the Syndicate, who are doing all in their power to deserve success.

AN OLD OXONIAN.

## DINSDALE-ON-TEES.

IN the notice of Dinsdale Spa, contained in our last number, we referred at page 285 to the recent discovery of a new spring, resembling in its composition the celebrated Carlsbad water.

We are now able to present the particulars of analysis made by Mr. Alfred W. Stokes, F.C.S., F.I.C., Public Analyst for the important metropolitan districts of Paddington, Bethnal Green, and St. Luke's.

From careful analysis Mr. Stokes finds that the water taken from the new sping contains the following constituents :—

| | Grains per gallon. |
|---|---|
| Sulphate of lime | 93.00 |
| Carbonate of lime | 38.77 |
| Sulphate of magnesia | 37.68 |
| Sulphate of soda | 32.90 |
| Chloride of sodum | 9.00 |
| Silica | 0.56 |
| Oxides of iron and aluminia | 0.42 |
| Nitrates, organic matter, &c. | 7.27 |
| Total | 219.60 |

On further analysis as to its freedom from surface-infiltration, &c., I find the organic matter to yield :—

| | |
|---|---|
| Nitrogen (as nitrates) | 0.21 |
| Nitrites | none |
| Ammonia | 0.0018 |
| Albumenoid ammonia | 0,0098 |

The oxygen required in fifteen minutes to oxidize the organic

matter was 0.019 gr. ; in three hours, 0.028 gr.

On consideration of the foregoing facts I am of opinion that this is a sample of an undoubted and valuable mineral water. It is entirely free from any pollution with sewage matters.

"It contains a high proportion of the medicinal salts, sulphate of magnesia, or Epsom Salts, and sulphate of soda, or Glauber's Salts. These compounds render the water mildly purgative, increasing the action of the bowels and promoting secretion from the mucous membrane of the stomach.

ALF. W. STOKES, F.C.S., F.I.C.

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# FOOD AND COOKERY IN TURKEY.

BY DR W. F. AINSWORTH.

*Concluded from page* 214.

THE orientals eat so much farinaceous food (not omitting chestnuts where procurable), that almost every village, nay, often every household, has its own peculiarities for preparing such for the table. The most common cake—the pida of the Turks and peta of the Greeks—is generally heavy and indigestible, but with plenty of yagh, or minced meat, or chopped vine leaves or spinach or parsley, not uncommon additions, it becomes light and nutritious. Coarse square cakes are sold in towns under different names, according as they are mixed with chopped meat or cheese. Cakes made simply of flour, yagh and water, are almost infinite in variety. The Turks call them lagaguit when mixed with eggs—haslama when mixed with cheese. The Greeks and Slavonians make cakes like the Schmaren of the Austrians. One of the lightest cakes is the Baklava. It separates into thin laminae, and honey is introduced between the leaflets. Equally good are the maphis, little round cakes of white flour mixed with honey. The Greeks add almonds to the paste, the Aleppines pistachio nuts. Savoy cakes, Milan cakes, and the Schneeball of the Germans, are all imitated more or less felicitously. A kind of macaroni and vermicelli is also manufactured, and bread is toasted or fried in butter, and served up with milk, eggs, or honey.

One of the most common sweetmeats is the kaimakja of the Turks —it is a peculiar mixture of eggs, milk, and sugar or honey. The Halva is in some forms even more recherché, and in it butter is added to the honey or juice of grapes inspissated—a sweet preparation in almost universal use throughout Turkey and known as Pekmes. The preparation just mentioned is the Usum—Pekmesi Halvasi. Other forms of Halva are to be met with at the confectioners or in private harems. Many ladies take a pride in their sweetmeats, confectionery, and preserves. In the harems of the great, cinnamon, ginger, and other aromatics are in daily use, and the sweetmeats are perfumed with musk or roses. When thus scented they are known as Devaimisk. Some of these precious halvas are sold in little earthern pots, and keep for a long time. Jellies of sheep's trotters coloured with roses are called Almasi—the more common description of jelly is known as Sovulma. As many varieties of bread are made in different parts of Turkey in Europe, just as maize, wheat, barley, oats, or other grains predominate, so different kinds of pekmes, or jams and preserves are made according to the fruit prevalent in the country—figs, mulberries, plums, apricots, pears, apples, and others. But the most common of all, and that which is met with in the poorest habitation, in a country where little wine is manufactured, is the pekmes of grapes or raisins. So also is it to be met with, thick or thin, sweet or acid, clean or dirty. A peculiarly inspissated form of pekmes or grapes, is known as kufter—pekmes or monseles of the Greeks. A string is dipped into this, as candles are made, until a kind of sweet sausage results from the proceeding, and this is known as sujuk. As in European countries—some places have attained a kind of celebrity for their successful preparation of halvis, sweetmeats, and preserves.

Taking diet, habits, and climate, into consideration in connection with the various races of men inhabiting Turkey in Europe and Turkey in Asia, those who abstain totally from alcholic drinks are the finest. The Kurds, who are mountaineers, are probably as fine a race of men, as are to be met with anywhere. As the Auvergnats are the water-carriers in Paris, so are the Kurds, the hammals or porters in Constantinople. The Turkomans come next in physical development. The Turk upon the whole is rather degenerating, but

the Osmanli—as he calls himself—although naturally indolent—is capable of great exertion and endurance. The Arab, as is well known, is spare but wiry, and has little beard. This is probably connected with the high temperature of the dessert ; his teeth are good to the last, and it is also well-known how much he is capable of in the way of abstinence and endurance. The Bulgarian is a stout, able-bodied fellow, and the Slavonians are also a fine race of men. But they all consume various course brandies or spirits, among the most common of which is a kind of plum-brandy, or kirsch called slivovitza, and a brandy from grapes (komovitza). In Turkey in Asia, no other spirit is made save raki which is distilled from rice, except what is imported ; but in Turkey in Europe, brandy is distilled from grapes, 'Bujak raki, and from grain, Buidaj Rakisi. The Servians and Bulgarians have also a pear spirit called krushk-ovitza, and the Greeks have no end of liqueurs such as aniseed, curacoa, cloves, and Gul rakisi or raki coloured with roses, like the rosoglio of Dalmatia. Raki and other spirits are also sweetened with honey and this—the medeno-rakia—is the drink of festal occasions among Servians and Bosnians. The Roumanians are great consumers of brandy. Among the Christian race of Turkey, the Armenians, Chaldeans, and Syrians take precedence in point of physique, and this is manifestly due to their general sobriety and regular habits of life ; next come the Bulgarian and Slavonian races, and as to the Greeks and Roumanians, or Dacians, they are about upon a par, but they differ greatly according to locality. There are many Greek villagers scattered over Asia Minor and other parts of the country who would yield precedence to none in point of vigour of body, and general capabilities. In an intellecutual point of view, the total abstainer and the poorly fed, are as much inferior to the moderate eater and even drinker ; as he is generally superior in physical power and capacity of endurance. In a moral point of view the towns and densely inhabited countries are lower than where the population is thinner. Immorality, as we regard it, is sanctioned by the Mohammadan law. It is natural therefore that in that respect the Turks should either stand lowest or be without the pale—but the Mussulman has hitherto held a high character for honesty and veracity. It will be a sad day for Osmanli rule in Europe, when he

loses that reputation. The Armenians are also a moral people, the Greeks less so ; but, as has been said, there is a difference in large towns and sea-ports and villages in the interior—the Levantines, as the mixed Italian, French, and Greek populations of the east are called—ought to know better, yet they are not better than the natives.

It must be understood in thus attempting a few generalisations, that there are exceptions to all rules. Some Turkish officers will drink more raki than almost any Christian. There was a general at Baghdad distinguished for his bravery, yet known as Sarkosh Pasha or the "drunken pasha." Then again in considering the sometimes bad habits, low morality and physical inferiority of the Christians, (and of the Jews especially), we must also bear in mind the ages of oppression and ill-treatment they have undergone. Nothing upholds the Mussulman so much in his own self-respect, and in his bearing to others, as the sense of his being the dominant race and of the "true" religion. There are among the Christians many people of far greater intelligence, higher morality, and more enlightened and more cultivated understanding, than among the Mohammadans.

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## DIGESTS OF ELEMENTARY PHYSIOLOGY

### III.—ON RESPIRATION.

THE taking up of oxygen, and the excretion of carbonic acid, and hot aqueous vapour, is the essence of respiration. For oxygen is essential to the life of each individual cell in the body. The blood is the great oxygen-carrier: it takes up oxygen in the lungs and gives it up in the tissues, receiving at the same time their waste products. The essential organs of respiration are the lungs. Ultimately, their structure consists of a delicate membrane, one side of which is in communication with the exterior of the body, the other with the blood which has to be purified.

The lungs lie one on each side of the heart, and occupy the greater part of the thorax. They are composed chiefly of air cells, capillaries, and elastic tissue binding the whole together. Externally

they are covered by a double bag of serous membrane, termed the pleura, the outer bag of which lines the chest-wall, the inner encloses the lungs themselves. The back of the mouth, or pharynx, communicates by an opening termed the glottis with the larynx, a cartilaginous chamber which opens into the trachea. The walls of the trachea, or windpipe, are strengthened by a series of rings or hoops. These rings are cartilaginous in front, but behind, where the trachea comes in contact with the gullet, their incomplete ends are only united by muscle and membrane. On entering the thorax the trachea divides into two branches. These branches, or bronchi, enter the right and left lungs respectively.

Each bronchus then branches out into a number of fine tubes, which again sub-divide into smaller ones, and at length end in minute oval-shaped sacs, the air cells of the lungs. This sub-division of the bronchial tubes naturally increases the aerating capacity of the lungs, for the pulmonary capillaries form networks around the minute sacs in which the ultimate branches of the bronchi terminate, and every opportunity is thus offered for an interchange of their gaseous contents: a moist membrane, it has been experimentally proved, being no impediment to such interchange. And the blood in the capillaries is only separated from the air in the air cells by the delicate walls of the capillaries, and of the air cells themselves.

But in order that the lungs can continually give out oxygen, it is essential that they should have some means of obtaining it. The mechanism by which the lungs are supplied with oxygen from the external air is threefold; the factors are:—

1. The Diaphragm.
2. The Muscles of the Ribs.
3. The Elasticity of the Lung Tissue.

First, the thorax is enlarged in a longitudinal direction by the descent of the diaphragm. This is the result of the contraction of its muscular fibres, which proceeding from the concavity of its centre extend some downwards and outwards to the ribs, others to the spinal column. But the outer bag of the pleura being attached to the diaphragm when the latter descends it necessarily draws it down with it, and a vacuum would hence be left between the two bags of the pleura unless the external air forced its way through the trachea

into the elastic lungs, distended them, and made them follow the descending diaphragm. This it does. For the chest being an air-tight cavity, and its walls firm enough to withstand the pressure of the atmosphere on their outer surfaces, the lungs are preserved from such pressure externally, though not internally. And the atmospheric pressure being greater on their internal than external surfaces they must needs expand. Air is consequently sucked into the lungs, constituting an inspiration.

Secondly, the muscles which further assist inspiration are the external intercostals. Their muscular fibres run forwards and downwards from rib to rib in an oblique direction. Hence when they contract, and the distance between their two ends becomes as short as possible, they raise the ribs upwards, and force the sternum, to which they are attached, forwards. As the ribs increase in sweep from above downwards, the transverse diameter of the sixth is necessarily greater than that of the fifth or fourth, so that the raising of the ribs as a whole (except the upper two which remain fixed) enlarges the thorax transversely. This tranverse enlargement of the thorax takes place at the same time that the diaphragm descends. Hence the lungs can expand in both directions at the same time.

Thirdly, the elastic tissue of the lungs assists in their expansion both transversely and longitudinally. When the external intercostals cease to contract, and the diaphragm assumes its original position, air is forced out of the lungs. This constitutes an expiration. The internal intercostal muscles by their contraction assist expiration.

Respiration takes place about seventeen times a minute. The inspiratory and expiratory movements are succeeded by a pause, after which they are again resumed.

After an ordinary inspiration the lungs contain about 230 cubic inches of air, but only about one-seventh or one-eighth of this amount passes in and out with each respiration.

The vital capacity of the lungs equals the greatest volume of air expired after the deepest possible inspiration.

Expired air differs from inspired in the following particulars:— *1st*, it is charged with aqueous vapour; *2nd*, it is warmer than inspired air; *3rd*, it contains 4 per cent. more carbonic acid, and 4 per cent. less oxygen; *4th*, it is laden with organic impurities.

An examination of the blood found in the right side of the heart, the pulmonary artery, and venous system, the pulmonary veins excepted, displays a fluid of a dark purple colour known as venous blood ; while that contained in the left side of the heart, the pulmonary veins, and the arterial system, the pulmonary artery excepted, is of a bright red colour and is termed arterial. The change between venous and arterial blood must hence take place in the capillaries of the lungs. The difference in colour depends upon the relative quantity of oxygen in the red corpuscles ; for the hœmoglobin which is diffused through the stroma of the corpuscles has a strong affinity for oxygen, and when charged with it is of a bright red colour. It is found experimentally that arterial blood if separated by only a thin membrane from a fluid containing more carbonic acid than itself becomes venous, and venous blood separated by only a thin membrane from a fluid containing more oxygen than itself becomes arterial.

The change from arterial to venous blood takes place in the tissues, the oxygen carried by the red corpuscles being given up for purposes of oxidation, and the carbonic acid and other waste products of the tissues passing into the blood apparently by an independent process.

The chief difference between arterial and venous blood is in their gaseous contents. In 100 volumes of arterial blood may be obtained 20 vols. oxygen, 46 carbonic acid, 1-2 nitrogen ; of venous blood, 10 vols. oxygen, 46 carbonic acid, 1-2 nitrogen. The respiratory acts are rhythmical, and are regulated and harmonized by nerve force originating in the medulla, from a centre hence called the respiratory centre. If the medulla is removed, respiration ceases, but all other parts of the brain can be removed, so long as the medulla remains intact, without affecting the respiratory movements. This experiment proves the situation of the respiration centre to be in the medulla. Impulses are continually passing down from it to the muscles of the diaphragm, and to the internal and external intercostals, causing them to contract rhythmically.

When the process of respiration is interfered with by hindering the passage of air to the lungs, or when they are deprived of oxygen and inhale an excess of carbonic acid, the phenomenon of asphyxia occurs.

It is divided into three stages.

1. Dyspnœa.
2. Convulsive stage.
3. Stage of exhaustion.

During the first stage the breathing becomes heavy and difficult, and both the inspiratory and expiratory movements are increased in force. During the second stage the expiratory movements become violent, and the whole body at length is convulsed in the struggle. The third stage is one of calm exhaustion, long drawn inspirations occur at intervals, and finally death ensues. The three stages occupy about five minutes. After death from asphyxia the heart on both sides is found charged with venous blood.

ATHOL S. MEREDITH.

## DEATH OF DR. MILNER FOTHERGILL.

As this number of DIET AND HYGIENE is passing through the press, we regret to have to record the death of an eminent physician, Dr. John Milner Fothergill, who died at his residence, 5, Henrietta Street, Cavendish Square, on June 28th. Dr. Fothergill, whose amiable qualities made him a universal favourite with all who had the pleasure of his acquaintance, held several public appointments, amongst them that of physician to the City of London Hospital for Diseases of the Chest. He was a well-known writer upon medical and sanitary subjects, especially those bearing upon food and diet; and his death, at the early age of 47, deprives us of an estimable friend and worthy coadjutor.

# USEFUL INVENTIONS.

## CARBON FOOD-PRESERVING SAFES

WE had an opportunity recently of examining one of these excellent safes at the Dietetic and Hygienic Depôt, 6, Wells Street, Oxford Street, W. It has the appearance at first sight of an ordinary meat safe, but upon further inspection it will be seen that the lattice-work in the door and at the sides is composed of two layers between which carbon is placed. Consequently, when the door is closed, although there is a passage of fresh air into the safe, none can enter without first coming into contact with the carbon. The result is that meat and other kinds of perishable food can be kept in a wholesome, good condition for a long time in the hottest weather. A great economy is also effected through the circumstance that no ice, or any preservative preparation whatever is required; so that, in any ordinary household—however small—this safe would soon repay its cost in the saving thus arrived at.

The safes are well-constructed and cheap, ranging in price from twenty-eight shillings upwards; the smaller ones containing one shelf, the larger, two or three, with hooks for hanging meat and poultry, and fitted with lock and key. Any special size can be constructed to order. We ought to add that the Patent Carbon Safe was awarded a Diploma of Merit at the Universal Cookery and Food Exhibition in May last.

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-2 NOV 88

## ON HYDROPHOBIA AND DISTEMPER MADNESS.

### A PLEA FOR THE CANINE RACE.

BY W. ABBOTTS, M.D.

So much has been written upon the subject of hydrophobia which had better have been left unwritten, by reason of the erroneous doctrines and false deductions of different authors, that it will be desirable to place before our readers a comprehensive statement of the chief points of distinction between the terrible, though fortunately rare, disease, hydrophobia, and the comparatively mild, but common, disorder termed distemper madness.

From the days of Oliver Goldsmith (whose elegy upon the death of a mad dog should be committed to heart by every hydrophobia-alarmist,) and long before his time, it has been the custom, whenever a dog is strange in his manner, to raise questions as to his suffering from madness; and as a natural consequence, many thousands of dogs have been cruelly destroyed through labouring under this false imputation, while hundreds of persons who have been bitten by dogs only temporarily deranged owing to distemper (as would have been proved by the recovery of the animals, had the disorder been allowed to run its natural course) have either died outright, from the shock caused to the nervous system by the false idea that they had been bitten by hydrophobic dogs, or have been rendered miserable

for months and years through false fears of hydrophobia lurking in their systems.

Our belief is that the majority of persons who die of so-called hydrophobia really die of shock to the nervous system, produced by constant dread of the consequences of the disease. The same thing may be said of many cases of other disease, or of poisoning, where the feeling of fear works powerfully upon the nervous system. A singular instance of the effect of fear occurred abroad some time ago. A young woman, having had a quarrel with her lover, arrived, as young women occasionally do in similar circumstances in all countries, at the conclusion that life was not "worth carrying on," as our American friends would say, and deliberately set about poisoning herself. With this view, she cut off the ends of a number of matches, which she steeped in water, and then drank off the supposed poisonous draught. In the course of a short time the poison commenced to pervade her frame; she was seized with frightful spasmodic pains, cramps, and other "unmistakable" symptoms, to the great horror and alarm of her relatives, whom the cries and groans of the sufferer had brought to her room. Medical aid was eagerly sought after, and the doctor who had been summoned, having administered some general remedies, inquired for the box whence the matches had been taken, in order that he might form an idea of the quantity of poison swallowed. Upon examination he found that the matches were of Swedish manufacture, and contained no phosphorus; this gratifying information was promptly imparted to the patient, who made a rapid recovery.

A corresponding series of events was observed at Macclesfield during an apparent outbreak of hydrophobia some years ago, when several persons were bitten by a strange dog, and, as the Macclesfield people were at that time in a state of great excitement and alarm through the alleged prevalence of hydrophobia in the locality, the persons bitten were at once conveyed to the Infirmary. Here they began to rapidly exhibit all the symptoms of hydrophobia, and some of them would probably have soon died of nervous prostration, had not Dr. Bland, the medical officer of health for the borough, made a *post-mortem* examination of the delinquent dog, who had been

killed, as a matter of course, and discovered, just at the proper nick of time, that the unfortunate dog's excited manner and irritable snapping and biting could be readily accounted for by the circumstance that a large pin, probably swallowed accidentally, had found its way into the dog's stomach, naturally causing great pain, and driving the dog into a demented state. This fact, and various conclusive proofs that the dog was not affected with hydrophobia, as had been imagined, were soon communicated to the unhappy sufferers lying at the Infirmary, anxiously reckoning the few short hours left to them in this world, and within a very short period their symptoms had all gone, and so had the patients out of the Infirmary to their respective homes and sorrowing relatives, perfectly restored to health.

It cannot be too widely known that hydrophobia is one of the rarest of the diseases affecting the human race. My late and much-esteemed friend, the Honorable Grantley Berkeley, who was for many years the master of a well-known pack of fox-hounds, and who was a recognised authority upon matters of this kind, stated in an article published 15 years ago that his experience of nearly sixty years' close observation of hounds, and of every other sort of sporting dog, had brought to his personal knowledge only *one* hydrophobic dog.

During those sixty years, Mr. Berkeley writes, I had under my supervision a total of a thousand "mad" dogs, some of them temporarily deranged, but eventually recovering, others who showed distemper in its severest phases, and ultimately died violently insane.

While insane, these afflicted animals would bite at anything that happened to touch them, or anything they chanced to run against, dead or alive,—a man's legs, the dogs' own kennels, or even a brick wall. Mr. Berkeley's men were occasionally bitten on the hands by these dogs, which also bit each other at times, while those that recovered were bitten by their fellows as well as those that died. Mr. Berkeley thus observed that, though every one of these "mad dogs" was essentially mad,—as mad as could be,—yet they conveyed no infection of any kind in their bite, save now and then to a man who happened to be in a bad state of health, and then the wound was only occasionally followed by the usual inflammatory action, necessary more or less in all wounds to produce the healing re-action.

There could be no doubt that these bites were effectually made,

and that they would have been quite sufficient to have conveyed infection of the most deadly character, if infection had been there. But none of the bitten men or dogs were in any way permanently the worse for having been so bitten.

It is useless to try to gainsay such evidence as this, and, consequently, we can arrive at only one conclusion, namely, that, as Mr. Berkeley remarked, the thousands of dogs, annually said to be hydrophobic, are merely suffering from common distemper, through which ailment they become temporarily insane. If, instead of being hunted about by thoughtless and cruel men and boys, and goaded to distruction by the inhumane use of sticks and stones, these poor animals were fastened up in a secure place, where they could be quiet and have access to a plentiful supply of fresh water, nearly all of the dogs thus affected would make a speedy recovery.

In penning these remarks we are led to deal with the subject partly through our feelings of indignation at the frequent instances of unjust and cruel treatment of "Man's best friend, the dog," under the supposition and excuse that the animal is mad. But there is another point of view from which we must regard it, namely, the mischief which results to the public health and ease of mind through the fallacious notion that hydrophobia is common in the dog, and is consequently often communicated to the human being. As we have already shown, hydrophobia is rare in dogs; its occurrence in, or rather the possibility of its communication to, mankind is equally rare. Yet, owing to the absurd and erroneous doctrines which prevail upon this question, no sooner does a man get a bite from a strange dog, perhaps even so slight as scarcely to break the skin, than the direst forebodings of hydrophobia are conjured up, and, in many cases, the dog is killed. As Goldsmith wrote in his elegy on a mad dog:—

"The wound, it seemed both sore and sad
To every Christian eye;
And while they swore the dog was mad,
They swore the man would die.

"But soon a wonder came to light
That showed the rogues they lied;
The man recovered from the bite,
The dog it was that died."

In the whole course of human conduct there is nothing more senseless or inexplicable than this practice of destroying a dog upon suspicion only of madness. If it should ever fall to our lot to get

bitten in similar circumstances, we should be most anxious to have the dog kept alive. As long as he was living we should, at any rate, have an unfailing means of ascertaining the real condition of the animal, and we should derive much more pleasure and satisfaction from our seeing him gradually recover than from our being in a state of uncertainty as to the nature of his disease, owing to his having been vindictively and stupidly put to death directly after the occurrence of our injury.

We think, however, that this mischievous and wrong practice is due, in very great measure, to the ignorance which pravails upon the subject of hydrophobia ; and we cannot, therefore, conclude this plea for the canine race better than by quoting the table of the chief points of distinction between hydrophobia and common distemper madness, to which we alluded at the commencement of this article, and which was publishsd in the Honorable Grantley Berkeley's work "Fact against Fiction" ; a book which abounds in practical illustrations of the habits and instinct of animals, and which is worthy of perusal alike by the sportsman, the admirer of nature, and the humanitarian. In drawing up this table, Mr. Berkeley availed himself of the assistance of Dr. Philpots and the author of this article.

| HYDROPHOBIA. | DISTEMPER MADNESS. |
|---|---|
| *Definition.*—A fatal form of madness, communicable from the lower animals to man ; characterised, as the name denotes, by an intense dread of water. | *Definition.*—A form of rabid madness, not communicable to man ; characterised by foaming at the mouth, impairment of deglutition, and a desire to vomit. |
| *Premonitory Symptoms.*—Begin two days before the attack ; loss of spirits, loss of appetite, general depression. | *Premonitory Symptoms.*—Loss of appetite, and slight husking in the throat. |
| *General Appearance during the Attack.*—When let alone, the dog lies sullenly, as if "out of sorts" and depressed, notices little, but recognises his master by wagging his tail. Violently insane only on water being placed near to him. | *General Appearance during the Attack.*—He will bite at any of his fellows, gnaws at his bed or kennel, eats straw,* snaps at his attendant. |
| *Fits.*—Absent. | *Fits.*—Present in a marked degree in most cases. |

*In connection with this point we may mention that, in the inflamed stomachs of all dogs which have died when mad from distemper, there will almost invariably be found bits of straw and chips of wood, a sign that Nature led them to try to bring on vomiting, as a means of relieving the disordered state. On the contrary, if a *post-mortem* examination be made of the stomach of a dog which has died of hydrophobia, that organ will always be found nearly, if not quite, empty.

| HYDROPHOBIA. | DISTEMPER MADNESS. |
|---|---|
| *Foam at the Lips.*—Absent. | *Foam at the Lips.*—Very much, and the dog leaves it on the surface of the water he tries to drink (the foam being caused by futile efforts to swallow.) |
| *Water.*—Sprinkled over, or near to him, causes violent convulsions. | *Water.*—Has no effect on the dog. |
| *Thirst*—Absent. | *Thirst.*—Intense, insatiable. |
| *Desire for Water.*—Absent, on account of dread. | *Desire for Water.*—Very great. |
| *Appearance of the Eyes.*—Dull and heavy. | *Appearance of the Eyes.*—Dull, and green in their reflection. |
| *Howling and Barking.*—Absent. | *Howling and Barking.*—Present. |
| *Muscular affection of the Throat, causing inability to swallow anything.*—Absent, or not observable. | *Muscular affection of the Throat, causing inability to swallow anything.*—Well marked. |
| *Causes.*—None (appreciable.) | *Causes.*—Inflammatory action internally pervading the system. |
| *Prognoses.*—Very bad, always fatal, no chance of recovery. | *Prognosis.*—Good or bad, according to the severity of the fits. |
| *Termination.*—The symptoms do not vary to any extent towards the termination. | *Temination.*—A fit. |
| *Puthology.*—Intense inflammation of the brain, extending to the throat and lungs. | *Puthology*—Inflammation of the brain, often extending to the throat, the lungs, and often to the intestines. |
| *Prophylactic Treatment.*—None. | *Prophylactic Treatment*—Vaccination is an almost certain preventive |

It will be observed that there are several points of greatly marked difference between the two affections, notably, as regards the premonitory symptoms, the general appearance during the attack ; the occurrence of fits in distemper madness and their absence in hydrophobia ; the copious foam about the mouth in the former disorder, and its absence in the latter ; the negative results produced by sprinkling water, or placing some near a dog suffering from distemper, and the violent paroxysmal convulsions caused by acting similarly in the case of a hydrophobic dog ; the thirst and desire for water, intense in the distempered dog, absent in the hydrophobic ; barking and howling, present, and often very persistent in a dog affected with distemper, wanting in one suffering from hydrophobia; the inability to swallow, marked in the former, owing to muscular spasm of the throat, unobservable in the latter disease ; the appreciable causes, the prognosis, the mode of termination, and the relative ease with which distemper may be averted.

# CHEAP AND WHOLESOME FOODS.

## I.—OATMEAL.

A couple of months ago a friend wrote expressing concern that the value of oatmeal, as a cheap and nutritious food, and a substitute for meat, was not better understood by the working classes. A similar remark has several times been made in my hearing by friends of mine who were anxious to increase the available food supplies of the country. I doubt the practical utility of trying to teach the working classes by precept, though much can be done by example. Do you think, kindly reader, that you would listen patiently, were some one to say, "My good fellow, I am a gentleman, and have all the dainties and luxuries of the season, and never touch anything cheap and common, but you are only a clerk or a labourer! You can eat foods that would not suit me: I should not eat them, but you might have porridge for breakfast and tea, and a dish of boiled nettles for dinner, things good enough for you?" Of course you would not: you would feel insulted, and very naturally. It is mere waste of time for benevolent people to play the part of sign-posts—to point the way but not to walk in it themselves. Let them, by all means, set a good example, but let us also beg them not to talk of cheap and wholesome foods good enough for the working classes. That sort of people wont in these Radical times listen to such advice. In matters of diet, as in other things, labouring men copy their social superiors with a docility truly remarkable. In our state of society the poorer and humbler a class, the less likely, will it tolerate being labelled as inferior and poverty stricken. A few country clergymen and wealthy landowners could do more to make a more rational mode of diet popular than all the writers on dietetics put together.

Kingsley, I must confess, found that his example was not imitated by his servants in the matter of cheap and wholesome Australian tinned meats. That amiable and popular man used, with a grateful heart, to eat them in his dining room, and he probably placed them before his guests, while his servants insisted on fresh meat. The labouring classes are certainly the true Conservatives in matters of diet, and they will not be dictated to. When they follow it is with halting steps and slow, and at a safe distance from their natural leaders.

Prejudice! what hast thou not to answer for in matters of diet? "Were it not for the prejudice of the Christian Church," says Huxley, "we should eat horses and be glad of them."

We English, from what cause is not clear, are devoted to the pleasures of the table, and nevertheless, we do not excel in culinary arrangements. More food is wasted, more carelessness and incompetence shown in the preparation and arrangement of the dietary than would maintain an army, and pay the interest of the National Debt. Every time a badly cooked joint, or a doughy, sodden loaf, or a dish of under-done potatoes, comes to table, small sums of money are thrown away, ranging from a penny to a dozen shillings, and there is no return of any kind.

What a strange liking we have for banquets. We cannot celebrate the anniversary of an unsuccessful and sanguinary cavalry charge without making disgusting exhibitions of ourselves. We cannot invite half a dozen friends without giving them an opportunity of feasting. What need is there for this terrible state of things, more especially obtaining at the evening parties of the middle classes, for, at the splendid receptions of the aristocracy the same undue prominence is not given to the pleasures of the table? Would it not be preferable to invite a few friends for three or four hours, and to hand them a piece of cake and nothing more, that is if a late supper is not at all times objectionable? When living in Dublin I much admired the simpler habits of the kind and open-hearted inhabitants of that city. I have frequently been out for the evening in a quiet way, and after spending a few pleasant, cheerful hours, have returned home without being importuned with pressing invitations to take an unnecessary and indigestible meal. Few men during the summer half of the year lead a more active life, few have more worry, and few have their brains so constantly on the whirl, and yet three moderate meals a day are sufficient for my wants. Have we not all heard of the singularly sparing habits of two of the hardest workers and most illustrious thinkers of our times—Cardinal Manning, of Westminster, and Cardinal J. H. Newman, of Edgbaston, men who, in the decline of life preserve a vigour and activity that would be noteworthy in persons of fifty-five or sixty. The upright carriage and commanding voice of Dr. Manning tell of unbroken strength and iron-nerves, not of self-indulgence and over-eating.

Cheap and simple food should be all that the rich and the poor should desire. Were something more generally known as to the properties of foods and the art of cooking, few families would complain of insufficient diet. Six shillings a week will,—I speak advisedly—suffice to provide one person with the necessaries and indeed with some of the luxuries of the table, and four or five grown up people, living together, could cut down their food bill to less than £80 a year. This makes no provision for wine and tobacco ; but they are not necessaries. The great thing is to train children to simple habits from infancy. Unless the tastes are from the first simple and inexpensive, how can it be expected that in later life it will be pleasant to sit down to a frugal meal, nor will it then be found as palatable and agreeable as a banquet ? During its first ten years a child learns more than in all the rest of life. Then is laid the foundation of habits and tastes that may be partially concealed by other habits and tastes, but there they are for ever. Thousands of lessons live in the child's retentive memory, and in the devious voyage of sorrow and disappointment that takes him far away from his childhood's home, far from the tender counsel of his mother and the care of his father, his conduct is influenced, his destiny moulded, by what he then learnt and remembered. Many an aged man, on whom time is roughly laying its heavy hand, and whose stony and rugged path has few tender associations, has only to thank his parents for the troubles of sixty years. Another man looking back over the placid expanse of a joyous and useful life, owes more of the peace of the eventide to the teaching and counsels of the departed, beckoning him on, than he perhaps knows. That no one lives to himself is a trite saying, but oh ! how true. The bitter word, the bad example on the one side, the gentle accents of love, the mother's prayer on the other, never completely lose their influence, and are never without their fruit. Remember this, parents and teachers ! Use the talents committed to you, for on the day when God makes up His jewels he will demand an account of you.

The liking for cheap and wholesome food such as oatmeal must be formed in early years. Middle-aged and elderly men and women, who take up this Article, and who have not learnt to appreciate sparing and simple diet, will not find it easy to form new habits. But at least

they can train their children wisely. They can lay the foundation of good habits in the young if they will only act firmly, and without pleading excuses that they cannot afford dearer food. No one should resort to the shifts and equivocations with which a Scotch clergyman tried for a time to cultivate a liking in me for fat, oatmeal and some other foods, telling me that they were good for me, and that on them the Highlanders lived. He, however, preferred other and more dainty diet. Let parents and guardians place before the young plain foods fit for the human stomach, and let them by precept and practice show that they choose simple and frugal dishes because of their wholesomeness and palatableness. Then the young will learn to eat without questioning what is set before them, and will have no reason to wonder why papa compels them to eat porridge because it will make them strong like the Highlanders, while he eats cold chicken and hot buttered toast, though he does not pretend that those rich and savoury viands are particularly wholesome and nutritious.

We are nothing nowadays unless we are scientific, so, to begin with the alphabet of the matter, let me give the natural history of the Oat. The common oat is the *Avena Sativa*. Many varieties of this grain are cultivated. Roughly speaking, oats may be classed under two heads—white oats and black, red or dun. On the Continent other varieties are cultivated. Scotland is particularly famous for its fine oats, and at one time half the arable land was devoted to them. As articles of commerce oats are used enclosed in their palace or husks, and when deprived of their integument pass under the name of groats or grits, which, when crushed, are called Embden groats. The husk amounts to 22 or more per cent., the remaining 78 being the kernel. Oatmeal, the familiar food which is the subject of my paper, is the product of the kiln dried seeds, after they have been deprived of the outer husk or skin. It is darker than wheaten flour and its taste is less bland, being at first sweet, then becoming rough and distinctly bitter. Scotch oatmeal is not so finely ground as English, and being of a superior quality commands a higher price. In Germany and Switzerland, coarse oatmeal is browned in an oven and then used to thicken broths and soups, In South Wales and in Scotland the oat husks, with starchy particles adhering, are separated

from the other parts of the grains and steeped for a day or two in water until the mass ferments ; after being skimmed, the liquid is boiled down to the consistency of gruel, and in Wales, in this form, is called *sucan*. Boiled barley used to hold in the estimation of the Dutch the place that oatmeal holds in that of the Scotch, and was eaten with milk or treacle, like oatmeal. Buckwheat, rarely seen in England, is a great favourite in Russia, and often takes the place of porridge with them. Boiled and buttered, it was the favourite dish of Peter the Great, and he often supped upon it.

According to Dr. Letheby, the composition of oatmeal is as follows :—Nitrogenous matter, 12·6 ; Carbohydrates, 63·8 ; fats, 5·6; Saline matters, 3·0 ; and water, 15·0 per cent.

The nitrogenous matter of the oat is formed in great measure of a principle called avenine and allied to caseine. It lacks the tenacity of wheaten flour and is without gluten, so that it cannot be used to make light, vesiculated bread. It can, however, be made into thin cakes with water, and then baked on an iron plate. In this way it is largely eaten in Scotland, and is an article of staple consumption, and from this circumstance Scotland is called the land of cakes.

"Oatmeal," wrote Dr. Cullen, "is especially the food of Scotland, and was formerly that of the northern parts of England, countries which have always produced as healthy and vigorous a race of men as any in Europe."

It is held to be slightly laxative, and Sir Robert Christison found it in several cases useful when taken at breakfast as porridge, and undoubtedly it may act violently on a stomach unaccustomed to its use, but it speedily loses that effect, and sometimes seriously disagrees with persons of weak digestion, giving rise to acidity and pyrosis, and when not carefully prepared occasionally gives rise to intestinal concretions, the phosphate of lime, agglutinated animal matter, and the fine silky hairs at the end of the oat uniting to form hard foreign bodies which cause much constitutional disturbance and, occasionally, actual loss of life.

At one time oat cakes were very much used in Lancashire and Yorkshire. At the commencement of the Peninsular War a regiment was raised in East Lancashire and was called the "Haver-cake lads" from the recruiting sergeant carrying an oat cake on the

point of his sword. In Norway the peasants use as their common food "flad brod" which is made of ground oats, husk and all, mixed with potatoes and baked. In some parts of Scotland a palatable and cheap dish is made by toasting oatmeal before a bright fire and then mixing it with beef or mutton fat, and after the addition of pepper, salt and parsley, and chopped onions, again toasting, and serving it up.

A gruel drink made of decorticated oats seems to have been a favourite beverage as long ago as the seventeenth century; at any rate the *London Gazette* of Friday, August 13th, 1695, contains an advertisement that water gruel was always ready in Cornhill, at the Marine Coffee House, Birchin Lane, every morning from six to eleven, and as much as four or six gallons were daily consumed.

Oatmeal is somewhat difficult of digestion and in some few constitutions causes much intestinal disturbance, while, again, other people can take it without inconvenience for years, and greatly miss it if temporarily left off. It requiries long and thorough boiling, and as that is not always practicable in the early morning, it may be cooked the day before in a *double* pan, which allows the contents to simmer slowly, with occasional attention only.

Good Scotch oatmeal is cheap and wholesome, and should be oftener used than it is. I do not think that we can claim that is surpasses flour in nutritive value, though there is an impression that it does. Oatmeal is richer in mineral constituents and fat, but its nitrogenous and carbonaceous constituents are about the same in amount as those of flour. Unfortunately, the retail price of oatmeal has risen in England, so that, though Dr. Letheby states that it can be got at two-pence a pound, from enquiries which I made in Birmingham some years ago, I found that even inferior kinds fetched four-pence a pound in small quantities, though in large amounts good oatmeal is obtainable at three-pence the pound. A sample of very fine oatmeal has just been most kindly sent me by Mr. Andrew Glendenning, of 35, Poultry, E.C.: in quality it leaves nothing to desire, and I believe is not dear, but I do not know the price.

White bread is less nutritious than oatmeal—of that there is no doubt; the former is only half the price of the latter, so that we seem to pay dear for the greater dietetic value of oatmeal. Porridge is however found to be as cheap as bread, while with the former a little milk can

be eaten, although butter, a very expensive food, is taken with the latter. As then, under present circumstances, oatmeal porridge is as dear as bread, what are the advantages claimed for it? First, the addition of an economical and wholesome food to the national dietary; and, second, that in the case of children the larger proportion of nitrogenous and mineral matter is useful, while, in the third place, oatmeal porridge soon becomes with many people a favourite dish, and they enjoy a dish of it above all things, and scarcely care for breakfast without it.

If oatmeal could be purchased at three-half-pence the pound, and probably there are places where it could be got at that price, at any rate in large quantities, then, as it is slightly more nutritious than flour, it would be decidedly cheaper, for butter or dripping is generally eaten with bread, and thus the cost of the latter is increased. In middle class households the butter bill is very little lighter than the bread one.

Oatmeal does not make good bread, as I have explained above, but answers admirably for cakes, which may be eaten unleavened, as in Scotland, where they are called bannocks, or, as was, and still is the custom in the North of England, leavened.

To make oatmeal thoroughly nutritious and wholesome requires careful and abundant cooking. We English are too idle and careless to prepare porridge or anything else properly. Now, as oatmeal is, when imperfectly cooked, heating, wasteful, and unpalatable, it is no use having porridge, or any other preparation of oatmeal, unless well cooked. The Scotch are more frugal than we, and generally boil their porridge thoroughly. To mix oatmeal with boiling water is not sufficient, and is a wasteful and careless way of preparing it.

Oatmeal cakes, flavoured with costly condiments and made with butter, are exceedingly palatable, but not cheap, and as additions to the dietary of the poor are out of the question. If we want to utilise the cheap foods of other countries, we must be economical in preparing them. Just look at corn-flour, a pleasant and easily prepared food, but exceedingly expensive, and deprived of its most valuable dietetic properties. Corn-flour is only maize treated with a diluted solution of caustic soda, that takes from it its rough flavour and at the same time its invaluable dietetic properties.

All foods that cease to be the diet of the poor, and degenerate into the luxuries of the opulent become dear and scarce. Oatmeal, once the staple food of millions of our countrymen, is comparatively little used except by the well-to-do, and is much dearer than formerly. No doubt, were the demand to increase, the supply would become greater, and competition—that life-giving principle of trade—would reduce the present price. Even at three-pence a pound oatmeal is cheaper than most other foods, and well cooked, and eaten from childhood, is a valuable, wholesome and good food for children and adults.

Lord Lytton, describing the habits of Guy Darrell speaks of his great self restraint, and wisely adds that if an elderly man wishes to retain activity and vigour, he must avoid large and frequent meals, and at greater length, Sir Henry Thompson has covered the same ground, giving scientific reasons for greater care after forty. I am, however, prepared to go decidedly farther than the latter, and to argue that even in early manhood a sparing diet is far better, and that he who would remain strong and vigorous, active and well, from twenty-five to sixty-five should live sparingly. I once saw a man of sixty-four play cricket with spirit, and run with the activity of a hound, beating men thirty years his junior; perhaps this was an exceptional case, but there is too great an inclination in England to over eating and over sleeping, and large heavy meals. Life gains not merely increased usefulness but is invested with more enjoyment and dignity when the most scrupulous care is taken to avoid self-indulgence at table, while more leisure is found for the work, which seems to accumulate with advancing years, and to engross one's thoughts more and more. Depend upon it life is a serious matter, and the more a man enters into the spirit of his work, the more thoroughly he understands how much there is to do and how little time to get through it, the more difficult does he find it to answer satisfactorily the question—*Is life worth living?* Late to bed and early to rise with three sparing meals a day, and meat at most once, and a fair share of active exercise, and there will be little need to trouble the doctor, and still less reason to fear that the end of the year will find many arrears of work to overtake.

S. U. M.

# BRITISH HEALTH RESORTS.

## No. 10.—THE NEW FOREST.

By Dr. Alfred Crespi, of Wimborne.

Land, as countries become densely peopled, acquires a high value, and the powerful seize upon and appropriate every foot to which they can establish any claim. This state of things is natural, and has great economic advantages, so that it would be absurd to object to what is for the general weal. At the same time, although pleasant to be the undisputed lord of a hundred thousand acres of fertile and wooded land, and to know that neither fire nor shipwreck, robbers nor swindlers, can affect the value of landed property, it is not so delightful for the tens of thousands without a foot of ground to call their own, and who cannot walk across a field, or ramble through a wood, unless at the risk of being prosecuted for trespassing. The condition of things in England is as follows :—A few thousand landowners hold sway over thousands of broad acres a-piece, while millions of humbler folk are excluded from participation in the enjoyment of owning land, and are seldom able to see anything of the beauties of the country. The possession of land in England gives many privileges, social and political. Land has heretofore been a safe investment, and until ten years ago was everywhere gradually increasing in value. Year by year the advantages of owning it became greater, and I cannot well see how this could be otherwise, and no Act of Parliament could materially alter the present state of things. Land, in the circumstances in which we live, is a safe and coveted investment ; its value must on the whole increase, and the difficulty of buying it get greater. Surely we cannot suppose that the recent agricultural depression will last for ever, and that the death-knell of landed property has sounded. Agriculture has been as depressed, rents as low, and the farming outlook as bad, twice before in the lifetime of living men. The millions of England cannot hope, like the frugal peasantry of France and Italy, to own and live upon their little plots of land, to till them with their hands, and to be contented and thrifty peasant farmers. Our climate is against us while our manufacturing and commercial industries present opportunities for the acquisition of wealth which *la petite*

*culture* could never do. So far, nearly all writers and speakers on the subject of land are agreed ; but the matter does not end here. Though few townspeople can own land, though every foot is increasing in value, and is being jealously tied up from the masses and becoming the possession of a small class, large, open tracts of land are invaluable breathing places, and of vital importance to the continuance in health and comfort of the toiling and suffering millions. Attempts have been made to supply this great boon to the crowded centres of population by providing them with People's Parks ; so at least they are called, though often more like bleak moorland than verdant and health-giving parks. As far as they go, however, they are a blessing to thousands, who would otherwise rarely walk anywhere except along dusty roads and dingy town streets. But in addition to small parks, close to, or in towns, we require larger tracts of unappropriated hill and dale, plain and woodland, where health and fresh air may be within the reach of everyone who can leave his town home for a few weeks. Such open spaces were, till recently, numerous, and very easy of access. One by one the neighbouring landowners have established claims to the moors and forests. One by one open spaces have been enclosed, and been taken from the nation, and have become the property of private possessors. What is done is past and cannot be undone ; but against fresh encroachments we must exert ourselves promptly and energetically. We must preserve the few open spaces remaining.

Every one has heard of the New Forest. He has read how the relentless Conqueror depopulated the southern districts of Hampshire to provide himself with a great forest, where he and his sons could hunt, but a glance at the land shows that it never could have supported a large population, and the tale has lost nothing in the telling. He has heard how the Conqueror's fierce son, the Red King, on the eve of an expedition to France, rode down from Winchester, eighteen or nineteen miles, to Canterton Glen, a spot henceforth memorable in history, where, struck by an arrow in the breast, he died. Perhaps we have wondered how his death came about, whether his companion, Sir Walter Tyrrel, shot him purposely, as Walter Savage Landor has fancifully tried to prove, or whether the French Baron accidentally killed him, or whether, as dark tradition

whispers, some Saxon churl, dispossessed of his hut or lands, chancing to pass by, shot the Red King, and brought his life of infamy to an end. Every one knows that the New Forest was fatal to three members of the Conqueror's family. There, in 1081, Richard, the second son of William of Normandy, met his death. There died, accidentally shot by an arrow, in May, 1100, another Richard, the son of Duke Robert, and there, on the 2nd of August of the same year, the Red King died, to the great grief of very few.

The New Forest is that portion of the County of Hants bounded on the east by Southampton Water, and by the Avon on the west, having the sea to the south, and a line from North Charford on the west to Wade and Owerbridge on the east. In Domesday Book the New Forest is stated to contain seventeen tenants in chief, and seventeen under tenants, the latter corresponding to modern copyholders ; eighty-seven bordani, or cottagers, people holding a bord for which they gave rent or service to the lord ; sixty-six villaini, and two hundred and thirty-two serfs. The total area of the Forest is 91,000 acres, of which private owners have 26,000 acres, the Crown is absolute lord of 2,000, and to the remaining 63,000 the Crown has, in common with 850 proprietors, certain claims. About 5,000 acres are covered with ancient and well-grown timber ; 10,000 with timber nearly two centuries old, and perhaps as much more with young plantations.

In 1670, only 5,000 acres belonging to private individuals had been enclosed, while in 1783, they had appropriated or enclosed 24,797, besides 901 acres of encroachments, and 625 acres of Crown copyhold. As for the timber, in 1608 there were known to be 123,927 timber trees fit for cutting down, and these, with dotard and decayed trees, gave a total of 315,477 loads of timber. This had been reduced by the peculation of the keepers, and the neglect of the verderers, to 20,830 loads in 1783. Deer were plentiful in the Forest through many centuries, but though large sums were granted by the Crown for hay, they were in like manner greatly neglected, the keepers and the poachers thinning their numbers mercilessly ; while as many as 300 died in one Forest walk from starvation in the severe winter of 1787. They were finally cleared off in 1851, the Crown taking then, in lieu of feeding the deer, the right of planting 10,000 additional acres.

There are several ways of seeing the Forest to advantage, the best is to take rooms at Brockenhurst, or at Lyndhurst, in the very heart of the Forest. From both places an active walker could penetrate into nearly every corner of the whole. Or a visitor could stay at Romsey, 10 miles from Lyndhurst, and 14 from Brockenhurst. This I have done twice, and in the bright, sunny and dry weather of August or September, long excursions could be made. In all these places there is no lack of accommodation, while Romsey is only 16 miles from Salisbury, 10 from Winchester, and 10 from the famous Church of St. Cross, and, moreover, has a grand and perfect Norman Abbey of noble proportions. Lyndhurst is the capital of the Forest, and in its superb modern church, completed 25 years ago, there is a very remarkable fresco by Sir F. Leighton. Ringwood, at whose Grammar School Stillingfleet was educated, is 11 miles from Rufus's Stone, but close to Ellingham, the grave of Alicia Lisle: though more distant, it possesses some advantages, as it is easy to get from it to Bournemouth, and to Christchurch Priory Church, and not difficult to get to and from Swanage, Dorchester, with its ancient camp and Roman Circus, and Weymouth. Wimborne too, though still further off, is not inconvenient, and besides its fine and unique Minster, and Chain Library, is near some very perfect camps, the most remarkable of which are Badbury Rings, and the Castle Hill, at Cranborne. Fordingbridge, again, is not bad, while even Lymington brings some parts of the Forest close.

The visitor must, however, depend on out-door life and long excursions for his chief pleasure; the Forest towns are not in themselves sufficiently large to satisfy the lover of town life. In bad weather, rare, fortunately, from the beginning of May to the end of September, the district is extremely dreary, and the townsman will, I fear, utter many complaints.

The Boldrewood oaks are handsome, and of great size, so are many of the grand beeches near Rufus's Stone. The tree from which the arrow is said to have glanced that killed the Red King, is long since dead, but its site is marked by a stone, inclosed in a huge triangular case bearing on its three sides the following inscription:—

"Here stood the Oak Tree on which an Arrow, shot by Sir Walter Tyrrell, glanced and struck King William II., surnamed Rufus, on

the breast, of which he instantly died, on the 2nd day of August, 1100. King William II., surnamed Rufus, being slain as before related, was laid in a cart belonging to one Purkiss, and drawn from hence to Winchester, and buried in the Cathedral Church of that City."

"ANNO, 1745.

"That where an Event so memorable had happened might not be hereafter unknown, this stone is set up by John, Lord Delawar, who had seen the Tree growing in this place."

Brockenhurst Church, distinctly mentioned in Domesday Book, is interesting, as the following extract from the work on the Forest, published in 1862, by Mr. John R. Wise, will show, at the same time there is nothing remarkable in Brockenhurst and its Church :—"The approach to the Church remains in all its beauty. For a piece of quiet English scenery, nothing can exceed this. A deep lane, its banks a garden of ferns, its hedges matted with honeysuckle, and woven together with long bryony, runs winding along a side space of green, to the lytch gate, guarded by an enormous oak (its circumference twenty-two feet eight inches), its limbs now fast decaying, its rough bark grey with the perpetual snow of lichens, and here and there burnished with soft streaks of russet-coloured moss, whilst behind it, in the churchyard, spreads the gloom of a yew, which from the Conqueror's day to this hour has darkened the grave of generations."

The approach to the district from the Isle of Wight, and even from Bournemouth, can be conveniently made from Lymington, a quaint and fairly handsome little watering place, though not specially remarkable for size or beauty, or for its antiquities, but prettily situated and convenient, and at one time of much greater relative importance than at present. It is well, however, to be on one's guard against local traditions, and not readily to accept exaggerated narratives of departed grandeur :—"From the earliest times it evidently possessed the salt works, which, so late as the beginning of the present century, made the salt trade of Lymington second only to that of Liverpool, paying, as it did, a duty of £50,000 yearly upon the produce of its Salterns. The rock salt of the north, however, has driven sea-made salt out of the market, but so long ago

as 1147, Richard de Redvers, a descendent from one of the noble families of Normandy, confirmed to the Church and brethren of St. Mary, at Quarr, in the Isle of Wight, the tithe which his father Baldwin had granted to them of the Lymington Salterns. In the reign of Edward III., when it sounds quaint to modern ears to be told Lymington contributed nearly double the number of ships and men sent by Portsmouth to that Monarch's fleet for the invasion of France, the Borough was summoned to return representatives to Parliament, but none were returned till the 27th of Elizabeth, and it is somewhat remarkable that, from 1574 to 1834, the Burrard family held forty-six mayoralties, and represented the Borough in thirty Parliaments. They appear, in fact, to have been the Sultans of Lymington. It may interest readers to know that the modern proposal to pay Members of Parliament is simply a revival of an old custom. In earlier times, the officials of Boroughs, invited to send representatives to Westminster, frequently made a return that no one could be found willing to undertake the duties. The archives of Southampton show that Thomas Reynolds, in 1st Henry VII., received for his 'Parliament wages' from January 23rd to March 8th, £7 13s. 4d., and at Christchurch, Sir Peter Mew, about the beginning of the eighteenth century, gave a bond, the condition of which was that he would not demand any pecuniary reward of the burgesses, or put the Borough to any expense on account of his service in Parliament. In 1677, to prevent animosities and other inconveniences, it was ordered by the Mayor and Burgesses of Lymington that for the future the election of Mayor, as well as of Members of Parliament for the Borough, should be by means of different coloured 'bullets,' to be placed by each Burgess in a box for that purpose, but this order does not appear to have been acted upon, and rescinded shortly afterwards."

Through all the vicissitudes of eight centuries the ancient Saxon Forest, the bounds of which were extended by the pitiless Norman, has been, in its way, one of the most beautiful parts of England. One landowner after another has seized upon broad belts of woodland, and large tracts of the Forest have, under one pretence or another, been cleared and cultivated. Small towns and villages have sprung up in the Forest, and some of the best kept and straightest roads in

the kingdom run through that part of the county. Yet, after all, for sylvan beauty, for calm repose, for solitude, for accessibility, no other tract of equal extent is so remarkable. Change there has been, but less than one would expect, and portions of the Forest are what they were four or five centuries ago. In the New Forest the England of the Middle Age still holds its own.

The New Forest is locally said to be singularly rich in animal and vegetable life, but such claims are commonly made everywhere and it is doubtful if they have much to rest upon, as far as the New Forest is concerned. There are seventeen kinds of bronzed and green ferns, and 72 species of birds are resident in the Forest bounds, while at least 230 of the 354 British species have been found in it. The insect life of the district is rich and varied, and in places the vegetation is luxuriant, while in other districts little except gorse and heather and poor grass grow. Taking it as a whole, the Forest is not a fertile tract, though there are in the river bottoms patches of rich land, which, partly from natural advantages, and partly from human care, have an air of fertility and beauty, standing in marked contrast to other parts.

How can I describe this lovely district? Persons, unaware that forests are not necessarily covered in all their extent with tangled old trees, fancy that, as soon as one enters the New Forest, there are on all sides vast tracts of woodland, and nothing but woodland; never was there a greater mistake. Thousands of acres are covered with fine timber; and still larger tracts with newly-planted trees, and there are also very extensive heaths. The charm of the New Forest is, next to its extent, due to its variety. The heather is so thick, tangled and tall, that during the late summer, when one mass of flowers, the Forest is more attractive than the most carefully kept garden and I know nothing equal to it for wild, indescribable loveliness. The dry, indeed arid soil of much of the district seems, in conjunction with the bright sunshine, to suit garden flowers particularly well, and the abundance and variety of the latter are difficult to surpass elsewhere in England. So with the older woods, it is their beauty and extent that delight. The timber may not always be as large as one might wish, though hundreds of acres are densely wooded, and bear trees satisfying the *connoisseur* in timber. So, with the younger planta-

tions: their extent makes them remarkable. Persons who have often strolled through large woods and plantations, and are alive to the beauties of woodland scenery, feel how little they know of the charm of a great forest until they wander for hours in the New Forest. Nothing like the forest exists in any other part of England, and nothing like it could now be called into existence. It would take two or three centuries to produce such a forest. The mildness of the Hampshire climate has probably something to do with the luxuriance of the heather and gorse, and with the beauty of the scenery, equal to anything in the South of England, though falling far short of the romantic glens of Derbyshire and the rich verdure of Brecon and Hereford.

One of the most charming excursions is from Brockenhurst to the majestic ruins of Beaulieu Abbey. For nearly three miles the road winds through the trees, then passes for a couple more over Beaulieu Heath, and then gradually descends for a mile into the village, and passing through the latter, we see on the left the handsome house in which Lorn Montagu resides, and a little to the right, over the river Exe, stands the parish church, a vast building, 150 feet long, once the refectory of the ancient Abbey. The church is beautifully and reverently kept and is remarkable for its superb pulpit, and for a covered, arcaded passage leading to it. Near the church extend for a vast distance the remains of one of the noblest abbeys in the land and most exquisitely situated. The abbey church was only seven feet shorter than Winchester Cathedral. Well was the spot named Beaulieu.

An uneasy feeling has taken possession of the public mind that the forest is in danger of being inclosed, or felled. Attempts have been made to establish absolute claims to parts of it, and though there is little immediate danger of destructive change, no one knows what form these claims, inquiries and investigations may assume. The best guarantee for the preservation of the forest is that so large a proportion of the area known as the New Forest is covered with very young timber, that it would not be worth while to stock these plantations up, and nothing of the kind is likely to be done for years. The older timber might be cut down, and the beauty of the scenery destroyed for a century or more—assuming, that the removal of the

finer timber would not be a step towards the cultivation of the land on which it grew. Fears for the New Forest may have been unnecessarily aroused, and there may be little prospect of destructive change, but while there is time to assert the claim of the nation to what remains of the forest, the opportunity must not be allowed to slip. No one could otherwise tell when the fairest woods in the South of England, still open to the public, might be closed against visitors, and converted into private property, and no one can tell when the most charming woodland scenery, the most lovely heaths the eye could desire to rest upon, may be spoilt by the hand of man and so-called improvements.

Timber of comparatively small size is constantly being cut, both on the Crown lands and on the estates of local magnates, and as long as this thinning out is not carried to too great lengths, no fault need be found, indeed it is a positive advantage at times to keep trees from being too thick. But in wandering through the New Forest, it has pained me to see hundreds of trees lying in all directions. The excuse would be that it is necessary to thin the timber. All I know is that, with the exception of the younger plantations, large tracts of woodland are so scantily covered with trees that on hot days there is hardly any shade. It is so easy to cut down a few thousand young trees and thin a wood, but it takes twenty years before the remaining trees have grown sufficiently to fill the large spaces made in all directions. So little old timber remains in this country that we must regard with suspicion attempts to remove fine young trees that would some day take the place of the forest monsters whose growth had required centuries.

If what I have said of the importance of preserving the New Forest in its present state, on account of its fascinating scenery, historical associations, and advantages as a health resort does not seem conclusive to zealous advocates of economy, who fancy that every foot of waste land should be utilised to grow food for our vast and hourly increasing population, let me remind them of a few ominous facts. Were the whole of the New Forest cleared, were the whole 63,000 acres remaining used for agriculture, the produce would not maintain the inhabitants of such comparatively small towns as Bath or Cheltenham. At present, half our food comes

from abroad, and so rapid is the increase of population, that not even the utilisation of all the parks and forests in England would provide food for the fresh mouths we may expect in the next ten years. There is such a thing as being penny wise and pound foolish, and the destruction of ancient woods and the cultivation of waste places would be dearly purchased by the increased disease and suffering, and greatly decreased enjoyment of life that would result.

## No. XI.—CLACTON-ON-SEA AND WALTON-ON-THE-NAZE.

The first-named seaside resort is the nearest to London on the East Coast, and is situated at the extreme part of the county of Essex, seventy miles from the Metropolis. Although its neighbour, Walton-on-the-Naze, has been long known, Clacton has only recently grown into repute,—it might, indeed, be said, into existence.

At the present period, railway communication may be regarded as the mainspring of life of a watering-place; in fact, it sometimes determines its very being. People are no longer content to make tedious journeys by road for the purpose of reaching any particular spot; and, although some few may be willing to undergo the trouble, it is more than sufficient to deter the majority from visiting any place, whatever its natural attractions may be, if it is necessary to make the final portion of the journey by road. This was the case with Clacton-on-Sea until a few years ago; the nearest railway station having up to then been on the Tendring Hundred Branch of the Great Eastern Railway, whence the few remaining miles had to be accomplished by coach or other vehicle. Now, Clacton has been brought into direct communication with the Metropolis, and many persons are beginning to find it out who would never have gone there under the old system of travelling. Partly through this circumstance, and partly through the enterprise of owners of property, the place bids fair to effect a rapid development. One fact alone will suffice to indicate the recent origin and rapid growth of Clacton-on-Sea; less than twenty years ago the site now occupied by the Royal Hotel was a bean-field.

The train service to Clacton during the season has been greatly improved, and the faster trains occupy only two hours in the journey from Liverpool Street Station. Besides this speedy mode of conveyance, the steamboats running from London Bridge daily, in the summer months, make the voyage in some six or seven hours.

The natural advantages of Clacton are very great. Although it occupies an open position, facing the German Ocean, it escapes many of the disagreeable drawbacks noticeable at other watering places on the East Coast, owing to its aspect being nearly due South, whereas they often look directly to the East or to the North.

The marine view from the grassy heights overhanging the sea is magnificent, and gives an uninterrupted outlook of many miles over the German Ocean. On the land-side of the town is a pleasant, fertile, well-wooded country, albeit somewhat flat. The town itself stands 50 feet above the sea level, and the subsoil is gravelly.

The air is bracing and invigorating, and a luxurious sense of calm retirement pervades the whole scene, vastly different from the noise, bustle, and other unpleasant concomitants of London life—conditions which are also, unfortunately, too conspicuous at the more largely frequented and over-crowded seaside resorts.

Clacton is eminently adapted for persons who seek real change from active professional or commercial pursuits, real rest for over-taxed brains and over-strung nerves, and real incentives to health. From the moment that the visitor steps upon the grassy sward at the summit of the cliffs in front of the town he becomes conscious of a comparatively new state of existence, and breathes a delightfully pure atmosphere, which makes him almost instinctively inhale still deeper draughts of the ozone-laden air.

An additional recommendation in favour of Clacton is that, owing to the bracing character of the air, people can take exercise out of doors all day long during the hottest summer months, when many resorts situated on the South Coast are almost unbearable in consequence of the intense, almost tropical heat, which often prevails at those places in June, July, and August.

The sands are good and extensive, and afford ample facilities for exercise and bathing. The latter is excellent, as the bather soon finds himself in deep water, instead of having, as at many places, to

wade for a considerable distance through shallow water before getting into a sufficient depth for taking a plunge.

A good pier, 1,200 feet long, extends far into the waters of the German Ocean ; contrasting agreeably with the old, ricketty structure, familiar to visitors to Clacton in its early days, and constructed of boats, which then served as a landing-stage for steamboat passengers. The distance to which the pier is carried insures the certainty of steamers being able to disembark their passengers at any state of the tide ; under the old arrangements they were frequently subjected, at low water, to the inconvenience, delay, and risks of being landed by small boats.

At the time when sanitation is beginning to occupy more public attention, it would be unfair to omit reference to the system of drainage, and to the excellent water-supply, of which Clacton can now boast. The water-supply is commonly the weakest point in the local sanitary conditions of many seaside places ; but at Clacton, it is, on the contrary, one of the strongest, for the artesian well sunk at the Clacton Waterworks, under the direction of Mr. Tilley, the eminent water-engineer, of London, furnishes an abundant and constant supply of pure water.

In connection with Clacton we may mention that it was selected, some few years ago, as an eligible position for the Essex Convalescent Home, a commodious building, standing at some distance back from the sea ; also, that the present President of the London College of Physicians, Sir Andrew Clark, has a marine residence at Clacton.

The sea has made considerable encrouchments at this part of the coast. Political economists, especially that section known as the Malthusian, are fond of asserting that the population of England is becoming too large for the island ; but, when we consider the ruthless ravages which the ocean has committed at numerous places, and the huge slices of land which it has absorbed, we are almost disposed to adopt the opposite to this proposition, and to say that the island is getting too small for the population.

Near Walton-on-the-Naze, situated a few miles from Clacton-on-Sea ruins of ancient buildings have been discovered, when the water was very low, at a great distance from the shore ; and the site of the ancient town of Orwell, now indicated by the West Rocks, a shoal

left partially dry at low ebb-tides, is now five miles from the mainland.

The original parish church of Walton, after suffering severely from the encroachments of the sea, was finally swept away at the end of the last century. Tower, chancel, monuments, graveyard, human remains—all were carried off to add to the countless masses of incongruous treasures hidden in the depths of the sea. What a keen satire upon the insignificance of man! The stately baron, the humble vassal, whose lives were as totally dissimilar as if they had belonged to different species of beings, and who, even after death, were carefully kept apart (the corpse of the one being buried with all possible pomp and ceremony, inside the sacred edifice itself, while the body of the other was hurriedly and ignominiously thrust into a rudely dug hole in the ground outside of the church,) torn by the waves from their resting-places, and hurled together to the bottom of the sea, there to keep gruesome company! The marble monument with its gilded record of the deeds and honours of "the most noble, most illustrious, and most powerful" lord, and the rough stone, bearing only the plain initials of the poor peasant, alike cast into the ocean depths, there to shift uncreasingly to and fro, till their crumbled fragments, broken up into the form of sand, revisited in such guise the beach adjacent to the homes where these men had lived and died!

It is a very significant fact, in connection with the ravages of the sea at this part of the coast, that one of the Prebendal stalls of St. Paul's Cathedral, at one time endowed with land situated near Walton-on-the-Naze, is now known by the title of "*Consumpta per mare*,"—Consumed by the sea,—thus showing that the endowment has completely disappeared, and the manner of its disappearance.

A sea wall has been constructed to protect Clacton against the incrouchments of the water.

Speaking of one kind of defence, namely, the sea wall, naturally brings to mind another, the Martello towers, which stud this coast at various intervals. These take our thoughts back to a past period, the commencement of the present century, when our grandfathers erected a large number of detached forts, called Martello towers, for the protection of the most exposed parts of the East and South-East

Coasts, and especially intended for the purpose of giving a warm reception to the great bugbear of Europe, Napoleon Bonaparte, if he had succeeded in carrying out his deeply cherished, but never executed, design of invading England.

The country in the neighbourhood of Clacton-on-Sea presents opportunities for various interesting excursions. By water, Walton-on-the-Naze, Ipswich, and Harwich may be visited; from the last-named place Dovercourt (a suburb of Harwich) and Felixstowe are readily accessible. By railway, the same towns may be conveniently reached, and also Colchester (with its old castle and valuable museum), Wyvenhoe (the principal scene of the earthquake, a few years ago,) Brightlingsea, and other places worthy of a visit. St. Osyth, Weeley Woods, Thorpe, Kirby, Holland (properly speaking Hoyland, which is its old name,) Frinton, Bentley, and other villages are within easy distance by road or rail.

Walton-on-the-Naze is the nearest seaside resort, being only eight miles distant, by road; another route is by railway, *viâ* Thorpe Junction. It is situated, as its name implies, at (or, rather, within a short distance of) the Naze, a word derived from the Saxon *Nasse* (nose,) denoting a piece of land projecting seawards. In former times, the Naze extended much farther into the German Ocean, which, as has already been mentioned, has swallowed up many an acre of ground in this vicinity.

Until some few years ago, Walton possessed two piers. One of them has, however, succumbed to the ever-aggressive sea.

The remains of the Priory of St. Osyth are still very extensive, although vast quantities of the materials of which it was constructed have, from time to time, been employed in the erection of more modern buildings near to it.

At the dissolution of the monasteries by Henry VIII., St. Osyth was one of the chief religious establishments in Essex. Its origin dates back to the seventh century, when Osyth, daughter of Frithwolf and of the daughter of Penda, King of Mercia, assumed the veil instead of completing her nuptials with Sibere, King of East Anglia, to whom she had been betrothed. History does not tell us whether Sibere took very much to heart this decided jilting, (not an uncommon sort of thing, by the way, when betrothals were made in

haste, for political or territorial reasons, and repented of at leisure) but he seems, like a sensible man, to have accepted the inevitable result of the lady's unwillingness, for, far from displaying any annoyance, he presented Osyth with the village of Chich, where she built a nunnery, of which she was the first abbess. Perhaps, instead of chagrin, Sibere may have felt a kind of relief at being released from his engagement to such an uncomfortably mysterious personage as Osyth appears to have been.

According to Capgrave, the chronicler, who wrote a voluminous account of Osyth's life (printed by Wynkin de Werde in 1516,) Osyth, when young, was placed under the care of St. Modwen, who resided at Polesworth in Warwickshire. Here several extraordinary occurrences happened to the future saint. The most remarkable, perhaps, was that, on one occasion, having been sent with a book to Edith, a sister of King Alfred, Osyth fell into a river where she is said to have remained for three days and nights; but, being eventually fished out, she was restored to life through the prayers of St. Modwen. If the Royal Humane Society should ever select a patron saint, we would strongly recommend St. Modwen to the notice of the committee of that useful institution.

But Osyth must have unfortunately outlived her friend, Modwen, or the curative power of the latter must have been limited; for, in 663, a band of Danish marauders landed on the Essex coast, ravaged the adjacent country, and, reaching Chich Nunnery, endeavoured to persuade Osyth to abjure Christianity, and to adopt their form of worship in the place of her own. The lady flatly declined to comply with this request, and the ungallant Danish leader consequently ordered her head to be cut off, whereupon a scene of a most remarkable character is alleged to have ensued. No sooner had the Danish freebooters fulfilled their leader's orders than Osyth, nothing daunted, picked up her head and nimbly proceeded with it to the church dedicated to St. Peter and St. Paul, one third of a mile distant from the scene of the tragedy. Here, checking her flight at the closed door of the church she struck it with her blood-stained hands, and then fell lifeless to the ground. The veracious mediæval historian, from whom this account is taken, adds that, from the spot where Osyth suffered martyrdom, there gushed forth a spring of

clear water, long afterwards reputed as possessing marvellous properties in the cure of all diseases. Osyth was duly canonised in course of time.

The nunnery which she had founded was probably destroyed by the Danes, but near to its site was subsequently erected the edifice named in memory of her. Such portions as now remain of it show that it must originally have been very extensive.

Anyone interested in ecclesiastical matters would find the church at Frinton, two miles from Walton-on-the-Naze, worthy of inspection, as presenting a marked contrast to what Osyth Priory must have been in its palmy days. This diminutive church is stated to be the smallest in England, with the exception of that of St. Laurence, in the Isle of Wight.

W. A.

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# DIGESTS OF ELEMENTARY PHYSIOLOGY

## IV.—ON DIGESTION.

The organs which convert food into nutriment are the mouth, pharynx, gullet, stomach, intestines, and their appendages. The process of digestion consists in the conversion of the food-stuffs eaten into such constituents, for the most part, as can pass by osmosis through the walls of the capillaries, and so into the blood. Once in the blood, the nutritive matters, carried everywhere by the torrent of the circulation, can be absorbed by the tissues through the thin capillary walls, such absorption effecting either the regeneration of the tissues themselves, or, by combination with their oxygen, the production of animal heat.

In order that life be sustained conveniently, it is essential that the body be supplied in definite proportions with the same elements which form its ultimate structure. These are carbon, hydrogen, oxygen, and nitrogen, with certain salts and water.

Food stuffs are classed as *Proteids*, *Fats*, *Amyloids*, and *Minerals*.

Proteids contain, for the most part, the four elements : carbon, hydrogen, oxygen, and nitrogen. Fats are composed of carbon, hydrogen, and oxygen.

Amyloids also consist of carbon, hydrogen, and oxygen, but they do not contain more hydrogen than will produce water with their oxygen.

Under the head of proteids come the gluten of flour, the casein of milk ; syntonin, the chief constituent of muscle or flesh, the albumin of white of egg, and the fibrin of blood.

The *fats* include oils, and all vegetable and animal fatty matter. The *amyloids* include starch, sugar, and gum. The *minerals* are water and sundry salts, and to these, strictly, should be added the oxygen secreted by the lungs.

Proteid food would sustain life in the absence of fats and amyloids, but large quantities of it would have to be taken to supply the body with sufficient carbon. Now the taking of proteid food in large enough quantities to supply the body's need of carbon would introduce more nitrogen into the body than it required, and as nitrogenous waste has ultimately to be got rid of by the renal tubules, this excess of labour might be injurious to them. Hence it is advisable to introduce carbon into the body in some less expensive manner. The economy of a judiciously arranged mixed diet is thus apparent.

To understand the process of digestion, it may be convenient to follow the changes which a meal, consisting of beef-steak, potatoes, milk, bread, and salt, would undergo in its progress through the alimentary canal. But the structure of the alimentary apparatus must first be briefly described. The mouth contains the thirty-two teeth, the tongue, and the orifices of the ducts of the salivary glands. These glands secrete an alkaline fluid termed saliva, which contains a ferment, ptyalin. The mouth is bounded above by the hard and soft palates, and behind by the constriction which separates it from the pharynx, a funnel-shaped tube which leads into the œsophagus, or gullet. The outer coat of the œsophagus is muscular, the inner mucous, the two being bound together by connective tissue. The œsophagus having passed straight through the thorax pierces the diaphragm, and opens into the stomach, the entrance into the latter being guarded by a ring composed of circularly-arranged muscular

fibres, which, by their contraction, can close the orifice. This orifice is termed the cardiac. The stomach is a muscular bag, lying transversely in the abdomen. It is covered externally by a serous membrane, derived from the peritoneum. Beneath this are layers of muscular fibres, then comes a submucous coat of connective tissue, and lastly, the inner coat or mucous lining. The latter is thrown into folds which disappear to increase the capacity of the stomach when food enters it. It is on the mucous coat that the glands are situated which secrete the gastric juice, an acid fluid which contains the ferment, pepsin. Its acidity is due to the presence of hydrochloric acid. The stomach presents on its upper edge a short concave curvature, known as the lesser curvature, and along its under edge, a long convex, greater curvature. The lesser curvature opens into the small intestine, the entrance being guarded by the pylorus, an arrangement of muscular fibres similar to that at the cardiac orifice. It offers resistance to the passage of undissolved food, and effectually prevents a return flow of the fluid contained in the intestine. Like the stomach, the walls of the small intestine have four coats, an outer serous, or peritoneal, a muscular, a submucous, and a mucous. The latter is gathered into folds, called valvulœ conniventes, which increase its surface. It also contains a number of small glands, the glands of Lieberkühn, which secrete a fluid succus entericus, the precise action of which is not known. But the most important of the structures in the mucous coat of the small intestine are the villi, minute finger-like projections of the mucous coat itself, lined with epithelium, and containing an artery, vein, and capillary network, also the blind end of a lacteal. What are known as solitary closed follicles are also found in the mucous coat. These are spherical masses enclosing bodies resembling white corpuscles, without ameboid movement, and containing a fine network of connective tissue. Sometimes they are found in groups, and are then called Peyer's patches.

The small intestine is divided into three portions—the duodenum, jejunum, and ileum, though there is no natural line to mark off these divisions. The first twelve inches is called the duodenum, the succeeding portion occupying two-thirds of its whole length, the jejunum, and the remaining lower portion, the ileum. The whole

length of the small intestine is considerable, but its numerous coils enable it to occupy a comparatively small space. It is bound loosely to the spinal column by a reflection of the peritoneum. It opens into the large intestine through the ileo-cacal valve, which effectually prevents a return flow of its contents. The walls of the large intestine consist of four coats : an outer serous or peritoneal, a muscular, a submucous, and a mucous. The latter is studded with glands of Lieberkühn. The large intestine is divided into three portions, the cœcum, colon, and rectum. The cœcum is the blind dilatation beyond the ileo-cœcal valve. Then ascending on the right side as the ascending colon, it crosses the abdomen transversely, and descends on the left side as the descending colon, and terminates in the rectum.

The other organs immediately connected with the digestion are the liver and pancreas, the ducts of which by one common opening pour their contents into the duodenum. The liver is situated on the right side of the body, chiefly under the false ribs. It is a glandular organ weighing about four pounds. It secretes an alkaline fluid called bile, which, when digestion is not going on, is stored up in a receptacle called the gall bladder. The pancreas is a gland lying behind the stomach, about seven inches long, and weighing about four ounces. It secretes the most important of the digestive juices, an alkaline fluid containing a ferment called trypsin.

What takes place when the meal already spoken of is eaten may now be considered. It may be classified as containing : proteids and fats in the beef-steak ; in the potatoes, starch ; in the bread, mainly starch, a little proteid, and salts ; in the milk, fats, amyloids, proteids, salts, and water.

The action of the teeth, in the first place, breaks the food into small pieces, the salivary glands at the same time pouring their contents upon it, and converting some of the starch into sugar, which is absorbed at once by osmosis into the blood. This conversion of starch into sugar is due to the presence of the ferment ptyalin in the saliva, ferments being bodies capable of producing almost unlimited changes (under given conditions) in other bodies, without undergoing any change themselves. The rest of the food, rendered moist by the saliva, and converted into a bolus by the tongue, descends into the

œsophagus, from whence, by continual contraction of the muscular walls of the œsophagus above it, it is finally conveyed to the cardiac orifice, and so enters the stomach. The secretion of the gastric glands immediately becomes active, and they continue to pour their contents on the food so long as it remains in the stomach, the contraction of the muscular walls of the latter at the same time subjecting it to continual movement. This movement, accompanied by the action of the gastric juice, converts the food into a mixture about the consistency of pea-soup, called chyme, some of the proteid matter of which is converted, owing to the presence of the ferment pepsin, into peptone, a form of proteid differing from all others in being readily diffusible through animal membranes. The peptones thus formed are immediately absorbed through the capillary walls, and so enter the gastric veins. The gastric juice has no action at all upon fats or amyloids, in fact the conversion of starch into sugar in the mouth is suspended when the food passes into the stomach.

The chyme having passed through the pylorus, enters the small intestine. In its passage through the duodenum it receives the secretions of the liver and pancreas. The bile has no action on its proteid matter or amyloids, but has a slight power of emulsifying the fats, that is, converting them into a creamy mixture. Its chief action, however, is to neutralise the chyme, and prepare it for the action of the pancreatic juice. The pancreatic juice converts into peptones such proteids as have escaped conversion in the gastric juice, converts the remaining starch into sugar, and emulsifies all the fats. The result of digestion is now called chyle. By the peristaltic contractions of the small intestine, the residue from absorption is conveyed into the large intestine.

The minute globules of fat do not enter the blood like the peptones, sugar, water, or salts by osmosis through the capillary walls. They pass bodily through the walls of the villi into the lacteals, which have already been mentioned as commencing blindly in the villi. The lacteals belong to a close network of vessels found in almost all parts of the body, which contain a clear fluid not unlike blood, *minus* its red corpuscles. The lymphatics, as they are called, originate either in the tissues themselves in a close plexus of lymphatic capillaries, or in irregular spaces lined with epithelium found in

interlacing meshes of connective tissue. The lymphatics anastomose freely, but they do not, like the veins, unite to form large trunks. Here and there they enter small, almond-shaped bodies, the lymphatic glands, where they divide and sub-divide, and then re-appear as one or two vessels on the opposite side of the gland. Finally, they enter either the thoratic or lymphatic ducts, which open respectively into the left and right subclavian veins, so that their contents ultimately finds its way into the general circulation. Though the function of the lymphatics is chiefly to gather up the overflow drawn by the tissues from the capillaries, the lacteals, the lymphatics of the small intestine, import nutritious matter directly into the blood.

Thus all food-stuffs enter the blood either as peptones, sugar, minerals, and water, by osmosis through the capillary walls, except the minute globules of fat which pass through the lymphatic system before they are received into the general circulation. A certain influence of the nervous system, as well as a natural state of the part to be nourished, appear essential conditions of nutrition, no less than a right condition of the blood itself.

ATHOL L. MEREDITH.

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# THE MANUFACTURE OF AERATED WATERS.

By THOMAS T. P. BRUCE WARREN.

THE increased consumption of aerated waters which has taken place during the last few years, may be fairly regarded as having outgrown the ordinary processes of production. Improved appliances and competition have deprived aerated waters of a great deal of their character as luxuries, and consequently they are now met with as articles of daily necessity, claiming a place in our cellars which was previously consecrated to the brewer and his commodities. I believe that even now the consumption of mineral waters is seriously restricted by the expense of the bottles containing them. Good aerated waters could be delivered to the consumer for about sixpence per gallon if some convenient method could be found for delivering

them in the same bulk as the brewer delivers his ale. The present method of delivering the more ordinary aerated waters, may be taken as costing one shilling per gallon to the wholesale dealer, and when placed on our tables reaches between two and three shillings per gallon, whilst, if taken at the bar of a respectable hotel, it does not cost much less than five shillings per gallon. I do not include in this the modicum of *something else*, which some people think is necessary to make these waters go down.

The complaint which manufacturers of aerated waters make against the publican, who, by his charges restricts the use of these beverages, seems to me not to reach the general public with sufficient force ; but it should be noted that the publican is not the only sinner whose notions of profit are not quite in harmony with those of the manufacturer of aerated drinks.

I am not aware of any attempt having been made to classify aerated waters on any strictly scientific definition. All naturally occurring water contains a greater or less amount of mineral or saline matter, due to the fact that generally speaking there are very few absolutely insolable salts, and the purer the water is at its source the more easily does it take up the more common naturally occurring substances met with in its course.

We may define mineral waters, whether artifically prepared or otherwise, as those which differ from ordinary drinking water in possessing either an abnormal quantity of saline ingredients, or which are characterised by the absence or presence of the constituents of ordinary water and contain sometimes a large quantity of the normally occurring salts by which they acquire distinct properties from ordinary potable water. When the quantity or nature of the abnormally occurring salts is large, the water is very frequently found to possess strongly marked medicinal activity.

Aerated waters are those which contain an abnormal quantity of carbonic acid gas, to which they owe their briskness and effervescent quality. It is also by this excess of carbonic acid that the carbonates of the alkaline earths are held in solution. When syrups or similar flavouring ingredients are added to ordinary water and aerated a class of waters called sweetened or fancy drinks are obtained. Mineral waters also contain in most cases large quantities of carbonic acid gas.

At the present time a very large quantity of natural mineral waters is consumed as ordinary beverages, which are bottled at the springs and imported to this country. These natural waters appear to be liable almost to the same capriciousness which is so characteristic of our tastes in other directions. The waters which are now imported offer a very striking contrast to those which we were accustomed to meet with a few years ago, and I have no doubt the increased hold which these waters have made is due to the extra care in bottling and the improved appearance of glass vessels over stoneware vessels.

I have been informed that manufacturers of mineral waters do not take that scientific interest in the production of these waters, artificially, which they did a few years ago, principally from the fact that they have enough to do during the season to attend to their ordinary manufactures. Apart from this consideration I can see no reason why the artificial production of any mineral water need offer any difficulty. Most people seem to think that all that is necessary to make a natural water, artificially, is to get hold of a tabulated analysis of the spring and simply to put the ingredients together. Such a proceeding is not only likely to lead to failure in most cases, but a feeling is liable to be created that the difficulty cannot be got over. Others again will add together the saline constituents which will readily dissolve in water and omit altogether those which are more difficultly soluble, whilst if any reaction should take place resulting in the formation of an insoluble compound it is many cases removed altogether.

It is necessary to consider very carefully the tabulated statement of an analysis of a mineral water in order to make an artificial water approximating that of the natural water.

We must remember that we can never be certain of the precise form of combination of the several constituents of a mineral water. There are two ways in which it is usual to express the results of an analysis of the saline residue of a water. Some chemists prefer to state the quantity of each metal or base found, and also, in a similar way, the quantity of each acid or acid radical, whilst others express their results by linking together certain acids and certain bases, as though certain definite combinations of acids and bases had been found. This latter method necessarily involves a certain

amount of guesswork, though probably we may not be far wrong in assuming that those combinations of acids and bases exist in water, which present the most stable condition when in the state of solution and that the affinity between the acids and bases will be satisfied according to our general notions of the strength of affinity between them.

In most cases it would be extremely difficult to adapt this concoction—for it is really hardly anything else—to the preparation of an artificial mineral water ; whilst in many cases it would be absolutely impracticable for attaining an accurate synthesis.

There is a considerable amount of skill required in compounding a mineral water so as to retain a faithful representation of an analysis, however stated, and I am not aware that any manufacturer at the present time makes a speciality of this interesting branch of the business, the result of such neglect being, that the importer of natural waters has pretty much an unmolested interest.

There are a few general facts which are probably well known to some manufacturers of mineral waters, and which are of inestimable importance. It is well known that those substances which are sparingly soluble in water, have their solubilities greatly increased if recently precipitated, and used in a moist, *not dried*, condition. In some cases, the precipitant has a modifying influence on the solubility, when it may be even possible to remove, by washing, all traces of the extraneous salt or compound. Again, other cases may arise where a compound has to be formed by the mutual action of two soluble salts, where washing or exposure to the air would be impracticable. In this case, care must be taken to select those salts which, by their mutual decompositions, will give resulting compounds which, at any rate as far as their constituent acids and bases are concerned, are not foreign to the compounds or constituents of the water itself.

*(To be continued.)*

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The phylloxera has appeared in the Rust vineyards in Lower Hungary, in consequence of which great consternation prevails among the local wine-growers.

# REVIEWS.

## CONTEMPORARY MEDICAL MEN.

"PROVINCIAL MEDICAL JOURNAL," (Office: Friar Street, Leicester. Two vols., demy 4to. Price, £2 10s.)

Under the able and judicious editorship of Dr. Dolan, of Halifax, the *Provincial Medical Journal* has rapidly made a leading position, and now most numbers contain six or eight valuable articles, besides a considerable number of notes, reviews, and comments of exceptional interest. It has been one of the chief features of this periodical to give, every month, the biography and the portrait of a distinguised medical practitioner. These biographical notices leave nothing to desire—brief, clear, accurate, fair and complete—they have brought within reach of the profession at large, a great deal of information respecting men, whom the seclusion and preoccupation of medical life, would, in most cases, not enable busy general practitioners to know except by name. But in addition to these biographical notices, the portraits are, with rare exceptions, simply perfect and most pleasing. The two magnificent volumes lying before us comprise fifty of these lithographs and portraits. We naturally turned to those readers of the profession whom we knew most intimately, and whom we often see, and we must confess that the portraits are not only faithful, but executed with the highest finish. Being satisfied as to the perfection of the engravings in the many cases in which we could judge, we turned to those other leaders of the profession, whom we did not know, even by sight, feeling no doubt that the resemblance to the original was as faithful. The biographies which Mr. John Leyland, the editor, has revised and expanded, are also admirable, and let us assure our readers that it is no light matter to write such notices accurately. In the first place it is not easy to get the requisite material, and though the subject of the biography may be in a position to afford the necessary information, it is not always practicable to get from him what is required, and then friends have to be resorted to, and they sometimes deceive, unintentionally no doubt, and supply facts that are not trustworthy. An excellent

feature of the work is the long list of books and papers by the distinguished men whose lives are given. We warmly congratulate the publishers on their enterprise, the editor on his ability and fairness, the engravers, and the printers and binders, and we venture to hope that this most notable contribution to contemporary medical history will find a place in thousands of homes, and not be confined to the medical profession.

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"The Life of the Fields." By the late Richard Jefferies. (Chatto & Windus ; 2s. 6d., 1888.)

Mr. Jefferies was one of the most charming writers of his day on country matters. His intense love of nature, keen observation, inexhaustible command of elegant language and power of description gave a charm to nearly everything that came from his pen. For years anything bearing his signature was eagerly read by thousands to whom his name became familiar, and who mourned when he died that his literary labours had not done more for him. How this was we do not know, for if ever a man had a popular style it was he. But, nevertheless, Fortune did not smile upon him, and bred to no regular profession, and completely dependent on his pen, his latter days seem to have been full of disappointment, and his poverty, when too late it became known, aroused much generous sympathy. The volume lying before us is a collection of a few of the many papers that, sometimes signed, sometimes unsigned, appeared in a long course of years, in periodicals of more or less mark. Some we remember reading when they first came out, others are new to us, but though the volume necessarily lacks that continuity which a series of articles would have, the volume is a singularly charming one, not beyond the comprehension of intelligent young people, not beneath the attention of the most profound and scholarly student—a popular, suggestive, delightful work, of which tens of thousands of copies ought to be sold, and which cannot fail to become a general favourite wherever it is known.

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"Home Nursing." By E. Margery Homersham. (pp. 61.) Beaumont & Co., 6, Wells Street, W. Price 6d.

This valuable little book contains the substance of the lectures on

nursing delivered by Miss Homersham before the members of the National Health Society, and elsewhere.

Miss Homersham has successfully endeavoured to adapt the regulations of hospital practice to the conditions of nursing in a private house, and has produced an excellent guide, suited to home requirements.

The subject is treated of in seven chapters, including every matter which a home nurse should be cognisant of.

The first chapter defines the duties of the nurse, and gives important directions as to the management of the sick room, the bed and bedding, and other matters.

Chapter two enters upon the details of nursing, and instructs the nurse how to make observations and notes of various phenomena, including the temperature, the pulse, and respiration, with the view of relieving the patient's condition at the time, and reporting it subsequently to the medical attendant. It also shows how bed sores should be prevented, if possible, or treated should they occur.

The third chapter contains all that a nurse ought to know about medical weights and measures, the administration of medicine, and the local employment of various topical remedies, such as massage, leeching, and inhalation.

Chapter four is devoted to the consideration of baths of various kinds, and packing, cold or hot.

One of the most important chapters is the fifth, dealing, as it does, with the following, amongst other subjects:—Infection, the preparation of the sick room, sanitary precautions to be observed, the disinfection of linen and bedding, disinfectants, fumigation, the symptoms of disease, and the signs of improvement or approaching dissolution.

Surgical nursing occupies the sixth chapter, which comprises wounds, bandaging, splints, padding, the treatment of hœmorrhage or collapse, operations, and the after-management of such cases.

Chapter seven discusses diet, milk, ice, beef tea, cooking, puddings and drinks; while a carefully-compiled index, at the end of the book, adds materially to its value.

"Apple Tree Annual for 1887 and 1888," or "Vegetarian Varieties and Cookery." (F. W. Allen, 4, Ave Maria Lane, E.C.)

These two pamphlets, for they cannot be called books, are a veritable *multum in parvo*, and contain a perfect store of information relating to vegetables and fruits. As far as we can judge, great accuracy is displayed in the historical passages, and the writers have contrived to get together an amount of information that almost entitles their pamphlets to be called encyclopædias. The recipes, however, will probably attract the greatest attention, and in variety, simplicity, and clearness, leave nothing to desire. English people are not to be complimented on the perfection and economy of their cooking, and many a woman who calls herself a good plain cook would be none the worse for a small work on cooking, which she should study and carefully obey. Much of the bad cooking which disgraces English households is due to faulty recipes, carelessly put into practice. The *Apple Tree Annual* gives some scores of excellent recipes which any intelligent person could profit by.

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## TINNED CHOLERA.

Just when tinned meat of the better kinds is beginning to secure a large measure of popular favour, it would be a pity to revive exploded prejudices by the merest suspicion that the chicken cholera, recently exported to kill the Australian rabbits, may be returned to us corned, canned, and fortified with the brand of some great Australian flockmaster. I therefore enclose cuttings from Colonial papers to shew that the danger has been discovered, and we may trust the colonists not to spoil a trade, which to them and to us is of ever increasing importance:—

(From the *Adelaide Observer*.)

"Sir,—It appears that there are others in the secret besides Professor Watson in distributing disease among rabbits. Steamers have been taking diseased rabbits up the rivers for distribution, and scab has since broken out amongst the cattle at Blanchetown, and is spreading rapidly. This is something unusual when we consider that they are generally exceptionally healthy.—I am, sir, &c., W. T. Nott."

On this the *Tasmanian Mail*, January 14th, remarks :—"It will be seen from this that the fears we expressed as to the possible results of carrying out experiments of this kind have already been realised. Notwithstanding Professor Watson's very confident assurance that the 'sarcoptes cuniculi' was not communicable to other animals, it has already been communicated to cattle at Blanchetown, and we are told is spreading rapidly. It will probably, therefore, not be long before it spreads over the flocks and herds of New South Wales, as well as of Victoria, which is rather a serious matter for us, considering that a very large proportion of our meat supplies are being drawn from those colonies. It may be all very well for Professor Watson to practise experiments in his laboratory, but we cannot understand how the South Australian authorities can have been foolish enough or negligent enough to allow any of his inoculated rabbits to be taken up the river for distribution without having some better assurance than the mere 'ipse dixit' of a university professor that the disease was incommunicable to animals other than rabbits. So far cattle only are spoken of as being infected, but the disease will not be long in spreading among sheep, and then we shall have to look out for ourselves, or all the trouble that was incurred a few years ago in the eradication of scab, will have to be gone through again."

The assertion that chicken cholera does not attack larger animals seems premature. In fact, theory and practice persist in maintaining a provoking mutual independence.

R. A. CHUDLEIGH, M.A.

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# NOTES AND NEWS.

A SURE METHOD OF KEEPING CHEESE.—It is recorded of an Archbishop of Dublin, who was very penurious in his habits, that he went one night, muffled up in a large old cloak, to the shop of a man named Moore, to purchase a cheese. After a great deal of bargaining, he completed his purchase, and, before leaving the place, inquired of Moore what was the best way to keep the cheese. The grocer, who had detected his Lordship under his disguise, replied, with true Irish humour, "Why! sir, I don't know how to keep cheeses, my business is to get rid of them; but if you will follow what I hear is the Archbishop's plan, you will find it answer admirably." "What plan is that, my friend?" asked his Grace, rather puzzled. "Faith, by my conscience," said the shopkeeper, "neither cut it yourself, nor let anybody else cut it."

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ROBOR.—We recently saw at the Hygienic Depôt, 6, Wells Street, Oxford Street, W., a new preparation bearing this name, and lately brought out by Mr. Wheeler, of Ilfracombe, the inventor of the valuable disinfectant known as Pixene. Robor is a harmlessly composed substance which possesses remarkable

properties in bracing and strengthening the skin; and it will be found exceptionally useful at this season of the year, by all persons who suffer from tenderness and chafing of the feet, or too profuse perspiration.

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NOW, AND THEN! 1767 AND 1888.—The two following royal bills of fare afford a marked contrast between past and present. The first was found amongst the papers preserved at Alnwick Castle, and has been recently published in the Percy Family History. It is marked "Windsor, February 6th, 1767":—

Pottage of rice.
Roasted pullets.
Mutton collops.
Leg of Pork roasted and Potatoes.
Hare roasted.
A Guinea fowl roasted.
Spinnage and Sweetbreads.
A Pippin Tart.
Oysters in Scallops.
Macaronia Sweet.
Beef, cold and collard.
Boar's Head.

The second is the *menu* of the entertainment given by the Emperor of Austria, at Innsbruck, on the occasion of the Queen's lunching with him, when journeying from Florence to Berlin:—

Consommé Royal.
Truites de rivière au bleu, Sauce Hollandaise.
Filet de Bœuf à l'Impératrice; Asperges en branches.
Poulards de Styrie.
Salade à la Française.
Compotes.

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FILTRATION ON A LARGE SCALE.—A limit to the rapidity of filtration has been generally adopted by the London water companies. It is represented by the passage of about five hundred and forty gallons of water through each square yard of the upper surface area of the filter in twenty-four hours, or two and a half gallons through each square foot of surface per hour. Water passed through well-constructed filter beds at a rate not exceeding this becomes, under ordinary circumstances, bright and clear.

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THE EFFECTS OF A SPECIAL DIET.—The late Bronson Alcott, father of the American authoress, was a vegetarian, and often criticised meat eaters harshly. To one of them he declared one day, that the eater of mutton becomes a sheep, the eater of pork becomes a hog, &c. "And is it also true," interposed the other, "that eaters of vegetables become small potatoes?"

## PROSECUTION UNDER THE MARGARINE ACT.

A prosecution was commenced a couple of months ago, against Mr. Cox, grocer, of Wimborne, for selling butter containing margarine or other foreign fat to the extent of 20 per cent. The first analysis was made by the County analyst, Dr. Comyns Leach, of Sturminster, Dorset. Dr. Crespi, of Wimborne, being subsequently consulted in the matter, came to the conclusion that the butter was not impure, and samples, officially sealed, were by his advice sent to Dr. Bostock Hill, of Birmingham, and subsequently to Somerset House. It is now proved that the butter is pure, although the report from Somerset House hints that the butter was indifferently made, whatever that might mean. In spite of a letter from the County analyst, reaffirming the correctness of his analysis, the magistrates, after many remands, have dismissed the case, as indeed was the only course open to them, and the perfect purity of the butter has been candidly admitted. We may add that the butter was obtained from a leading Bristol firm, who had purchased it direct from a good Cork house. Now comes the strange part of the affair. The unfortunate defendant, having gained his case, has to bear all the costs of the prosecution, the Wimborne Bench of magistrates having refused to allow any costs, though some of the magistrates were in favour of greater justice, we will not say generosity, so that it actually looks as though the much-belauded Margarine Act will allow proceedings to be taken against a most respectable and careful tradesman, and when he proves his innocence, he still has to pay the costs. The public should be protected, no doubt, but so ought tradesmen to be, and the costs of prosecutions that fall through should not have to be paid by the sufferers. Serious blame attaches somewhere, and greater care ought to have been taken not to commence the prosecution at all.

S.U.M.

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THE CONSUMPTION OF METHYLATED SPIRITS.—At a meeting of the Edinburgh Town Council an important communication was presented by the chief constable of the city, referring to the great and increasing use of methylated spirits as a beverage among the poorer classes. This trade in a most noxious material is largely carried on on Sundays when the ordinary liquor traffic is prohibited in Scotland under the Sunday Closing Act. The head constable's report is as follows :—"I think it my duty to bring prominently under the notice of the magistrates and council the fact that on Sundays, within the city, a considerable trade has arisen among certain druggists, for the sale of methylated spirit to persons who consume it as a beverage. In consequence of numerous complaints, I have had observation kept upon the shops of a number of druggists who were reputed to carry on this Sunday trade, and the result of that observation shows clearly that a very considerable traffic goes on every Sunday. The class of persons who purchase the spirit is about the lowest we have in the city, and their appearance ought to be sufficient to denote to the druggist the

purpose for which they are making their purchases. No questions, however, are asked as to what the methylated spirit is wanted for, and in not a few cases the purchaser did not even require to ask for any specific article, but simply placed an empty bottle on the counter with the price of the quantity wanted, and it was at once supplied. The whole facts go to show that the druggists are well aware that the spirit is bought to be drunk, but without specific evidence to prove this knowledge on their part, there is little hope of securing a conviction for a contravention of the Act. The spirit is known amongst its users by a variety of names, among which are 'finish,' 'dynamite,' 'polish,' &c. The trade is an increasing one, and I am certain it is doing a vast amount of mischief ; but, as the law stands, the police are powerless to deal with it. I have never been able to find any objection which should hold good to the prohibition of the sale of methylated spirit on Sundays, and if the corporation can see their way to make any representation likely to effect this, they would do a public service.

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DISINFECTANTS.—A student, undergoing his examination, was asked how disinfectants acted. "They smell so nasty," he said, "that people are compelled to open the windows, and then fresh air gets into the room."

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AN INTERVIEW WITH A CHEF.—M. Joseph Dugnol, late of the Maison Paillard, Chausee d'Antin, has been interviewed at New York, and this is about all of any value that could be got from the great *chef*.

*The Best Bill of Fare in the World.*

BREAKFAST.
Anything you like, and not too much of it.
Change every day.

DINNER.
Do.
SUPPER.
Do.

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LENTIL-ALMO BREAD.—A Company has been formed for the purpose of manufacturing and selling bread, biscuits, cakes, &c., according to the process patented by Mr. Preston ; and the prospectus will be issued shortly. The advantages of the Lentil-Almo Bread over that ordinarily made from wheaten flour alone are very great, as will be seen upon a perusal of the prospectus, copies of which can be obtained, and samples of the bread inspected, at the Dietetic Depôt, 6, Wells Street, Oxford Street, W. The Company must prove a complete success.

How to Detect the Presence of Sewer Gas in a Room.—Saturate unglazed paper with a solution of acetate of lead in rain, or boiled water, in the proportion of one ounce of the lead salt to eight ounces of water. Allow the paper to partially dry, and then hang it up in the room which is suspected to contain the deleterious gas; if this is present in any considerable quantity, the paper is completely blackened.

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Asylum Inspection.—The annual inspection of the Darenth Asylum and Schools took place on July 21st. Exclusive of the land lately acquired for the erection of a hospital for convalescent small-pox patients, the Darenth Estate, which is under the management of the Metropolitan Asylums Board, comprises 173 acres, 130 of which are under cultivation. The asylum contains about 800 insane patients, all adults and harmless; and accommodation for 550 additional cases will be shortly provided. There are about 600 imbecile children in the schools.

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One Way of Promoting Temperate Habits.—Dr. Lettsom recorded the case of a man who took twelve drams of spirits daily, but, having determined to wean himself from this practice, he adopted the following expedient. He always drank from one glass, into which he let fall a large drop of sealing-wax after taking each dram. In this way he gradually reduced the quantity of spirit consumed, until at last his glass became filled with wax, and the habit was eradicated.

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Public Hygiene in India.—An important resolution on the subject of sanitation has just been issued by the Indian Government, directing that municipal and local boards shall provide a new agency for improving public hygiene. The resolution orders the creation in each province of a sanitary board to advise and control the locality, and suggests that each provincial government shall form a loan fund to assist the local bodies in obtaining money at a cheap rate for sanitary purposes.

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Convalescent Home for Scarlet Fever.—At the annual meeting of subscribers held last month at the Mary Wardell Home, Brockley Hill, Stanmore, (Sir J. Risdon Bennett, M.D., in the chair,) it was stated that 306 patients had been admitted during the previous twelve months, being equal to the total number of admission of the preceding two years and a quarter, and that the applications for admission were far in excess of the accommodation. Many of the patients belonged to orphanages, refuges, special hospitals, and other charitable institutions, the Home thus affording a suitable place of residence during

convalescence for young people who would otherwise have been a source of danger to their companions after the acute stage had passed over. With a little prompt help, and additional subscriptions, the Home might now be made self-supporting, that is to say, the ordinary expenses would be met by the payments made on behalf of patients. The institution is most deserving of public support, and charitably disposed persons could not do better than send their subscriptions direct to Miss Mary Wardell at the Home.

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ROOM FOR VEGETARIAN TEACHING.—The Committee on the Army estimates state in their final report, just issued, that the Duke of Cambridge and others have expressed in giving evidence a decided opinion that the soldiers do not get meat enough, and that the allowance should be increased from three-quarters of a pound to one pound daily for each man. This would involve an addition of £250,000 to the annual expenditure.

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BEESWAX *versus* WATER.—The Committee chosen to inquire into the causes of the epidemic outbreaks of ophthalmia at the District Schools at Hanwell have recommended that the floors of all the dining-rooms, school-rooms, and corridors should be beeswaxed and polished instead of being scrubbed with soap and water ; the object being to obviate the injurious results of dampness arising from frequently wetted floors. We understand that a marked decline of ophthalmia has already resulted from the adoption of this sensible plan, which should be followed in every similar institution, as well as in private houses.

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THE PHYLLOXERA.—The wholesale destruction of the French vineyards by this terrible pest has led to equally wholesale adulteration of French clarets with cheap, strong Spanish and Portuguese wines, and even spirit ; indeed, to such an extent has this new development of the wine industry been carried that some French houses have already commenced preparations in Portugal for conducting this process of adulteration on the spot. So says Consul Brackenbury, of Lisbon, who has issued a timely warning against Portuguese "claret."

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# Diet and Hygiene:

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OF

FOOD, DIETETICS, & HEALTH.


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## PRECAUTIONS AGAINST EPIDEMIC DISEASE.

### GENERAL MEMORANDUM

Drawn up by GEORGE BUCHANAN, M.D., F.R.S., Senior Medical Officer, Local Government Board ; and issued by order of the Board.

1. WHEREVER there is prevalence or threatening of cholera, diphtheria, fever, or any other epidemic disease, it is of more than common importance that the statutory powers conferred upon Sanitary Authorities for the protection of the public health should be well exercised by those Authorities, acting with the advice of their Medical Officers of Health.

2. Proper precautions are equally requisite for all classes of society. But it is chiefly with regard to the poorer population, therefore chiefly in the courts and alleys of towns, and at the labourers' cottages in country districts, that local authorities are called upon to exercise vigilance, and to proffer information and advice. Common lodging-houses, and houses which are sub-let in several small holdings always require particular attention.

3. Wherever there is accumulation, stink, or soakage of house refuse, or other decaying animal or vegetable matter, the nuisance should as promptly as possible be abated, and precaution should be taken not to let it recur. Especially, examination should be made as to the efficient working of sewers and drains, and any defect therein

and any nuisance therefrom or from any foul ditches or ponds should be got rid of without delay. The ventilation of sewers, the ventilation and trapping of house drains, and the disconnexion of cistern overflows and sink pipes from drains should be carefully seen to. The scavenging of the district, and the state of receptacles for excrement and of dust-bins, will require close attention. In slaughter-houses, and wherever animals are kept, strict cleanliness should be enforced.

4. In the removal of filth during periods of epidemic disease, it is commonly necessary to employ chemical agents for reducing or removing the offence and harm which may be involved in the disturbance of the filth. In the removal of privy contents these agents are more particularly wanted if the disease in question be cholera or enteric fever. The chemical agent should be used liberally over all exposed surfaces from which filth has been removed. Unpaved earth close to dwellings, if it be sodden with slops or filth, ought to be treated in the same way.

5. Sources of water-supply should be well examined. Water from sources which can be in any way tainted by animal or vegetable refuse, especially those into which there may be any leakage or filtration from sewers, drains, cesspools, or foul ditches, ought no longer to be drunk. Above all, where the disease is cholera, diarrhœa, or enteric fever, it is essential that no impure water be drunk.

The liability of leaky water-pipes to act as land drains and to receive foul matters as well as land drainage through their leaks is not to be overlooked. And such leaky pipes, running full of water with considerable velocity, are liable to receive, by lateral insuction at their points of leakage, external matters that may be dangerous. This latter fact is not recognised so generally as it should be ; and ignorance of it has probably baffled many inquiries in cases where water services have in truth been the means of spreading disease.

If, unfortunately, the only water which for a time can be got should be open to suspicion of dangerous organic impurity, it ought at least to be boiled before it is used for drinking, but then not to be drunk later than 24 hours after it has been boiled. Filtering of the ordinary kind cannot by itself be trusted to purify water. It cannot be too

distinctly understood that dangerous qualities of water are not obviated by the addition of wine or spirits.

6. When there appears any probable relation between the distribution of disease and of milk supplies, the cleanliness of dairies, the purity of the water used in them, the health of the persons employed about them, and the health of the cows that furnish milk should always be carefully investigated. Even apart from any apprehension of milk being concerned in a particular outbreak of disease, it is desirable that English people should adopt the custom, which is always followed in some continental countries, of boiling all milk at once upon its reception into a house.

7. The washing and lime-whiting of uncleanly premises, especially of such as are densely occupied, should be pressed with all practicable despatch.

8. Overcrowding should be prevented. Especially where disease has begun, the sick-room should, as far as possible be free from persons who are not of use to the patient.

Ample ventilation should be enforced. It should be seen that windows are made to open, and that they are sufficiently opened. Especially where any kind of infective fever has begun, it is essential, both for patients and for persons who are about them, that the sick-room and the sick-house be constantly traversed by streams of fresh air.

9. The cleanliest domestic habits should be enjoined. Refuse matters should be speedily removed or destroyed ; and things which have to be disinfected or cleansed should always be disinfected or cleansed without delay.

10. Special precautions of cleanliness and disinfection are necessary with regard to infective matters discharged from the bodies of the sick. Among discharges which it is proper to treat as infective are those which come in cases of small-pox and scarlatina from the affected skin ; in cases of cholera and enteric fever from the intestinal canal ; in cases of diphtheria and scarlatina from the nose and throat ; likewise, in cases of any eruptive or other epidemic fever, the general exhalations of the sick. The caution which is necessary with regard to such matters must, of course, extend to whatever is imbued with them ; so that bedding, clothing, towels, handkerchiefs, and other

articles which have been in use by the sick may not become sources of mischief, either in the house to which they belong or in houses to which they are conveyed. So far as articles of this class can be replaced by rags or things of small value, it is best to use such things and burn them when they are soiled. Otherwise clothing and infected articles should be subjected to the disinfectant of the sick room or be removed for disinfection by heat.

In enteric fever and cholera the evacuations should be regarded as capable of communicating an infectious quality to any nightsoil with which they are mingled in privies, drains, or cesspools; and after such disinfection of them as is practicable, they should be disposed of without delay and under the safest conditions that local circumstances permit. They should not be thrown into any fixed privy receptacle, and above all, they must never be cast where they can run or soak into sources of drinking water.

11. All reasonable care should be taken not to allow infective disease to spread by the unnecessary association of sick with healthy persons. This care is requisite, not only with regard to the sick-house, but likewise with regard to schools and other establishments wherein members of many different households are accustomed to meet.

12. If disease begins in houses where the sick person cannot be properly accommodated and tended, medical advice should be taken as to the propriety of removing him to an infirmary or hospital. Every Sanitary Authority should have in readiness a hospital for the reception of such cases.

Where dangerous conditions of residence cannot be promptly remedied, it will be best that the inmates, while unattacked by disease, remove to some safer lodging.

13. Privation, as predisposing to disease, may require special measures of relief.

14. In certain cases special medical arrangements are necessary. For instance, as cases of cholera in this country often begin somewhat gradually in the comparatively tractable form of what is called "premonitory diarrhœa," it is essential that, where cholera has appeared, arrangements should be made for affording medical relief without delay to persons attacked, even slightly, with looseness of

bowels. So, again, where small-pox is the prevailing disease, it is essential that all unvaccinated persons (unless they previously have had small-pox) should very promptly be vaccinated; and that re-vaccination should be performed in cases properly requiring it.

15. It is always to be desired that the people should, as far as possible, know what real precautions they can take against the disease which threatens them, what vigilance is needful with regard to its early symptoms, and what (if any) special arrangements have been made for giving medical assistance within the district. For the purposes of such information, printed hand-bills or placards may usefully be employed, and in cases where danger is great, house-to-house visitation by discreet and competent persons may be of the utmost service, both in quieting unreasonable alarm and in leading or assisting the less educated and the destitute parts of the population to do what is needful for safety.

16. The present memorandum relates to occasions of emergency, therefore the measures suggested in it are essentially of an extemporaneous kind; and permanent provisions for securing the public health have, in express terms, been but little insisted on. It is to be remembered, however, that in proportion as a district is habitually well cared for by its Sanitary Authority, the more formidable emergencies of epidemic disease are not likely to arise in it.

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## PRICES, PAST AND PRESENT.

By Dr. A. Crespi, Wimborne,
*Formerly Editor of The Sanitary Review.*

This pleasure-loving and excitement-seeking age craves novelty and freshness, and often refuses to consider important questions, which it vetoes dull. But matters on which the happiness and independence of millions depend can never be regarded as uninteresting, and the condition of the labouring classes is one of the most important problems of the day. The power with which those classes are entrusted and which, on the whole, they wield with ability and judgment, no longer permits them to be ignored. The working

classes are profitable to know, and if any one has the necessary tact and sympathy, what greater pleasure can be found than going in and out among them, and seeing something of their heroism, their struggles with poverty and ignorance, and their longing for independence?

From childhood I have felt a deep interest in the working classes; and the more I have seen of them the greater has become my admiration for their patience under difficulties and their earnest desire to rise in the world. They may not always take enlightened views of questions seriously concerning them: perhaps they are particularly prone to believe in the greater prosperity of long past times and to pin their faith to schemes which would not better their condition, and might, indeed, seriously injure it. For example, would the labouring classes gain individually or as a class from the nationalization of the land, whatever that may mean, the disestablishment and disendowment of the Church of England, and State Help on a large scale? These are schemes which many favor and from which they expect great things. When a little boy I often passed hours in the grimy workshops of the South Staffordshire nail makers, listening to traditions of times when food was cheap, wages high and abundant, and the comforts, if not the luxuries of life, within the reach of every hard-working man. But with advancing years I have learnt wisdom, and I should smile where once I attentively listened.

The following important summary of the present and past rates of wages among the working classes is invaluable, and bears closely on their condition. I have freely condensed it, and make no apology for inserting it here: it appeared in the *Times*.

"A Blue-book, lately issued, on Labour Statistics gives some interesting information on the wages that have been earned in different departments of industry during the last half-century. In cotton manufactures, we start at a time when great part of the work was done by hand-weaving, and when the workmen employed in all departments fell far short of the number introduced by subsequent divisions. We learn that in the principal seats of the cotton industry the wages paid from 1810 to 1825 were almost uniform in several departments. Coarse spinners, received from 20s. to 28s. per week. Calico printers start with 26s. per week, and keep on at the same rate

until 1821, when they rise to 30s., and then fall back to 20s. 6d., and in 1825 to 17s. 6d. In other departments the variation is much greater, but there is no clear correspondence shown between the variations in the different departments. The returns for 1832 give the average wages of men spinners as 20s. to 25s. per week, while the wages earned by hand-weavers are even more markedly below the rate prevailing at the time to which the earliest statistics refer. The tables for 1833 tell us that in 43 cotton mills in Manchester the average weekly earnings of adult males were 22s. 5¾d.; those of adult women 9s. 6½. The younger hands received much less. Boys and girls were employed on mill work at nine years of age, and earned respectively 2s. 9¾d. and 2s. 11½d. per week. In Glasgow the wages of cotton spinners did not vary between 1810 to 1820, and very little during the next decade. The best class of men on piece-work received 4s. 6d. per day. At the other end of the scale children under ten years of age earned 5d. per day as a *maximum* wage. In Glasgow there were in 1832, 242 boys and girls under ten years of age in cotton mills, and 824 children between the ages of ten and twelve. The first of the later tables shows the rate of wages in cotton manufactures at Manchester in 1839, 1849, and 1859. The rate varies in the different departments from a *maximum* of 45s. per week down to 4s., which girls between 14 and 18 engaged in throstle spinning were paid in 1839. In most cases there is an advance of wages under comparison, but not invariably. 1849 is in several instances better than 1859, and still more clearly in advance of 1839. Taking the figures all round, we find improvement in the twenty years. In 1874 the improvement is most marked in the lower and less highly paid departments. The tables go down to 1883, and the conclusion to which they point is that wages in the cotton industry have risen in very few departments since 1859; that they have been maintained in some departments, but that in the larger number they have fallen off. If we look at the returns on coal and ironstone mining, we shall find very little about the earlier years of the century. The wages of ironfounders in Manchester were 31s. 3d. per week in 1810. They rose to 35s. 10d. in 1818; and in 1832 they stood at 28s. to 30s. The later tables show the same course of subdivision as that in the cotton industry. It appears that in 1883 it was possible for

skilled hands to earn higher wages than fifty years before. The wages of colliers in South Wales were 18s. per week in 1844, and 19s. per week in 1845. In Staffordshire, in 1846, colliers were earning 19s. 10d. per week, 1849 16s. 3d. The wages of miners at the latter period had more than proportionally fallen off from the rate of 1846. But more recent tables show that in these departments of industry there has been a substantial advance made. In 1883 the wages of colliers at Swansea were 26s. per week. In North Staffordshire in 1880, the wages of coal hewers were 4s. per day, and those of colliers the same. Glasgow wages were a little above these, coal hewers receiving 25s. 3d. per week, but for 60 hours of labour, whereas in the North Staffordshire district the working week consisted of 54 hours. The tables about the building trades take us down only to 1834, and do not refer to many centres of the building industry. We learn that at Manchester carpenters earned 25s. per week in 1810, bricklayers 22s. 6d., and painters 22s. In 1825, after various fluctuations, carpenters earned 24s., bricklayers had risen to the same sum, while the wages of painters had remained throughout at the 22s. with which they started in 1810. In 1832 carpenters still earned 24s. but bricklayers only 17s. to 20s., and painters only 18s. Some of the most important industries of the country have come into being at a later date than that from which the tables start. In iron shipbuilding, ship smiths received in 1859 3s. 8d. per day at Liverpool ; joiners received 4s. $5\frac{3}{4}$d., in each case for a day of 10 hours. In 1880 ship smiths earned 34s. per week for 54 hours' work, and joiners 34s. 6d., a very substantial advance in each case upon the wages of 1859. In Sunderland in 1883 some of the workmen in iron shipbuilding were more highly paid still. The men employed on piecework could earn as smiths 52s. per week ; and the platers and angle iron smiths as much as 105s. and 100s. respectively. The wages at Sheffield carry us down from 1840 to 1874. Sheffield saw makers received in 1840 27s. per week, 29s. 6d. in 1850, and 32s. in 1860, for 48 hours' work. In 1874 they received 30s., but the working week was then but 36 hours. Grinders in the three earlier years earned 54s. per week, In 1874 they earned only 40s. In the wages of file makers, and, in many departments of the iron and steel industry, the Sheffield rate of 1840 is above that for 1871. About

gun making at Birmingham we have two tables, one referring to 1866 and the other to 1880. The general conclusion to which they point is that the average rate of wages had not changed much in the fourteen years' interval."

The tables of agricultural wages begin with 1860, and give no later statistics than those for 1870. They show that in 1860 the wages of agricultural labour were not uniform in different parts of the country. They were lowest in Devonshire, where they varied between 8s. and a *maximum* of 12s. in the quarter ending at Michaelmas. In the northern districts they are much higher. In the North Riding the lowest rate of the year was 12s. and the highest 15s. In Durham, Northumberland and Westmoreland the average of the year was even higher than in the North Riding. In 1870 there comes an advance all round. Devonshire still tails the list, or disputes the place with Dorset. The north maintains its pre-eminence, and some counties of the north midland and west midland districts come not far behind. The great advance in the general rate of wages during the latter half of the century is well known to be a favourite topic with Mr. Bright. The tables in the Blue-book lend a doubtful support to the theory. The most certain fact is that the all-round purchasing power of money is much greater now than 50 years ago, and that the labouring classes are much better off in consequence, apart from a consideration of the money wages which they obtain.

For some years much has been heard of declining trade, shrinking profits, and scarcity of employment. Every winter relief committees, relief works, and appeals for help have been increasing in number and importunity. A strong impression exists in many quarters that matters are going from bad to worse, that distress is rampant and that something, though nobody exactly knows what, must be done. Mr. Robert Giffen wonders why times of especial prosperity should ever occur. Though it will seem presumptious to express an opposite opinion, why, I may ask, should depression ever occur, except as the result of wars, convulsions of nature, revolution, and pestilence? Unfortunately depression does occur with its attendant miseries, and it is hard to assign a reason. The existence of great suffering and widespread distress cannot be denied, but I must point out the insufficiency of two or three remedies often proposed. One

of these remedies—a return to protective duties—is impossible, and could not improve the condition of the country at large, although undoubtedly it would benefit certain classes, but yet at the expense of the rest of the nation. Protection means monopoly, and that is its condemnation. For example: were only four hundred people allowed every year to commence practice as solicitors, in fifteen years the lower branch of the law would flourish beyond all other callings; and were only five hundred persons annually allowed to set up in medical practice, how opulent medical practitioners would become. But would the country gain? Protection is an interference with legitimate supply and demand. It means hampering trade, bolstering up rotten industries, and restricting the free interchange of the fruits of one man's industry for those of another. The great towns would not tolerate agricultural protection, nor would the enlightened opinion of the leaders of the great political parties permit anything in the shape of manufacturing protection. Moreover, protection is unchristian: it sets nation against nation, it means unjust privilege and disintegration instead of a free market and no favor. "Against all unjust privileges, against all social arrangements, which make the prosperity of one man incompatible with that of another, the Christian is bound by his humanity to watch and protect."

We hear much of foreign competition and that foreign nations are exerting themselves strenuously, and competing with us vigorously in our markets as well as in those of the world. What then? Surely they are at liberty to do so. Every nation has advantages peculiar to itself, such as the almost exclusive command of certain markets. which give it a great pull over its rivals. In the same manner every man has facilities for doing and producing something better than his neighbours. As it is a man's duty to confine himself to that which he can produce better and cheaper than anybody else, so is it the truest wisdom for a nation to produce what nature and art enable it to bring into the market at the lowest price and of the best quality. No one ever suggests, even in ultra-protectionist circles, that England should grow grapes for winemaking, pineapples, oranges, lemons, maize and dates; everyone knows that she would be hopelessly beaten by competitors. One might as

reasonably propose that Professor Huxley should open a draper's shop, and that Bishop Temple should teach little street-boys their letters. The absurdity of such proposals would prevent their ever being made. But many sensible and well-informed people seriously propose that our markets should be closed to foreign wheat and cattle, and that we should place restrictions on home production, not perceiving that we should raise the price of commodities and greatly diminish the supply, without benefit to the nation at large. The strangest matter is, that among the friends of protection are some of the most accomplished scholars aud kindest-hearted men and women in the land.

Of late, too much has been heard of Trafalgar Square meetings and State-provided employment, while people who ought to know better, complain that never have so many persons been out of work ; never has distress been so general ; never have prices been higher and wages lower. To the penniless man it is no consolation to know that bread is fourpence the quartern, and the man shivering over an empty hearth is not comforted by hearing that at Rotherham coal is five shillings a ton at the pit's mouth, and that in some parts of the world it can be got in any amount, cropping up at the surface of the ground, at the mere cost of carrying it away. It is fair to admit that whatever the present distress, matters have often been ten times worse, and that there have been even greater misery and depression in the lifetime of people not yet old.

In the seventeenth century wheat fetched fifty to sixty shillings a quarter, while a mechanic's wages when in full work, were sixpence to a shilling a day. Wheat is now hardly two-thirds that price, while wages are at least five times as large. Of the 880,000 families of which the population of England consisted in 1685, King computed that 440,000 ate animal food twice a week, the other moiety not eating it at all, or not oftener than once a week. London alone enjoyed the comfort of coal fires ; the provincial towns burnt wood and turf, and what the latter means anyone can tell who has passed a winter in the mild climate of Southern France. Even in the colliery districts coal was little used, and wood was the general favourite. As for the agricultural poor, how vastly their condition has improved in the present generation a single week

among the Dorset and Devon peasantry will show. If we go back two centuries, matters were incomparably worse than anything the last half century has had any experience of. Wages in the seventeenth century were, of course, lower in the rural districts than in the manufacturing towns, and I have hinted at the state of things in the latter. In the towns the living was luxurious compared with that of the villages. To come to minor matters ; the working of pit salt was not attempted, and the little salt used was obtained from seawater evaporated in long troughs. The salt procured in this rude fashion gave out a most offensive odour and was dangerous to health. Still worse, the great majority of the nation had to depend for their meat supply in winter on food preserved with the evil-smelling salt from brine, and the inevitable consequence was the frequency of scurvy and other loathsome diseases. In times of scarcity the distress of the poor was extreme, and the Government was frequently compelled to institute enquiries and to interfere with the freedom of the subject in a manner that would now be resented as intolerably tyrannical and inquisitorial. The golden time is assuredly not to be found in the seventeenth century, nor in the eighteenth either. Surely, too, it did not exist immediately prior to the repeal of the Corn Laws, for it was the widespread distress of that time which compelled Sir Robert Peel, a wise and enlightened but slow-moving statesman, to discontinue his opposition to reform and to promote measures which cost him the support of many of his irrational followers. Froude places the Golden Age of England in the early part of the sixteenth century, but would our working classes exchange places with their unhappy brethren of that era. Macaulay gives us a different picture : " In the XVI century the labourer was glad to get barley, and was often forced to content himself with poorer fare. In Harrison's introduction to Hollinshed, we have an account of the state of our working population in the golden days, as Mr. Southey calls them, of good Queen Bess. ' The gentilitie,' says he, ' commonly provide themselves sufficiently of wheat for their own tables, whylst their household and poore neighbours, in some shires, are enforced to content themselves with rye or barlie ; yea, and in time of dearth many with bread made eyther of beanes, peason, or otes, or of altogether and some acornes among. I will not say that this

extremity is oft so well to be seen in time of plentie as of dearth, but if I should, I could easily bring my trial, for, albeit there be much grounde eared nowe almost in everei place than hath beene of late years, yet such a price of corn continueth in each towne and market, without any just cause, that the artificer and poore labouring man is not able to reach unto it, but is driven to content himself with horse corne.' "

Lord Macaulay has of late fallen into discredit with a certain school of thinkers, who contend that he only admired material prosperity, and that he cared little for high thinking and pure living. This is doing him great injustice, but at any rate in any comparison of the condition of England in 1830 with that of the middle of the sixteenth century, his authority and accuracy can scarcely be impugned. I quote the following passage from his well-known essay entitled the Colloquies of Society. "The labouring classes, however, were, according to Mr. Southey, better fed three hundred years ago than at present. We believe that he is completely in error on this point. The condition of servants in noble and wealthy families and of scholars at the Universities must surely have been better in those times than that of day labourers, and we are sure that it was not better than that of our present workhouse paupers. From the household book of the Northumberland family we find that in one of the greatest establishments of the Kingdom, the servants lived very much as common sailors live now. In the reign of Edward VI. the state of the students at Cambridge is described to us on the very best authority, as most wretched. Many of them dined on pottage made of a farthingsworth of beef, with a little salt and oatmeal, and literally nothing else. This account we have from a contemporary Master of St. John's ; our parish poor now eat wheaten bread."

*(To be continued.)*

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CAVIARE.—It is stated that the annual export from South Russia of this article of food, which is the preserved roe of the sturgeon, is upwards of a million pounds, in weight. The greater part is shipped from Tanganrog, and it is mostly sent to Greece, Italy and Central Europe. The demand for it is comparatively small in England and France.

# DIGESTS OF ELEMENTARY PHYSIOLOGY.

## V.—ON THE NERVOUS SYSTEM.

THE nervous apparatus is broadly divided into the cerebro-spinal axis, and the sympathetic system. The former consists of the brain and spinal cord, and the cerebral and spinal nerves; the latter consists of a double chain of nervous ganglia lying in front of the spinal column, together with the nerves arising from the ganglia and those connecting the sympathetic with the cerebro-spinal nerves. Nerve tissue is composed of nerve fibres and ganglionic or nerve cells. Each nerve fibre, of the kind called medullated, is a sub-cylindrical body of an oily appearance during life. After death coagulation takes place and the fibres are then seen to consist externally of a delicate primitive sheath. Beneath this is the medullary sheath, or white substance of Schwann, which encloses the axis cylinder, the central portion of the fibre. The nerves are composed of bundles, or fasciculi, of fibres bound together by connective tissue, and enclosed in a connective tissue sheath called the neurilemma. Such is the structure, for the most part, of the fibres composing the cerebral and spinal nerves. In the flat fibres belonging to the sympathetic system the medullary sheath is absent, and nuclei are situated at intervals in their length. Some fibres of the latter, or non-medullated, kind are found in the spinal nerves, side by side with the medullated fibres. The olfactory nerves are composed wholly of non-medullated fibres.

Throughout their length the individual nerve fibres remain separate, though they divide at their peripheral terminations, but the different fasciculi frequently interchange the fibres of which they are composed. The ganglionic, or nerve cells, are masses of nerve substance found in the brain and spinal cord, in the roots of some of their nerves, and in the ganglia of the sympathetic. They contain a nucleus and nucleolus, and have one or more processes which anastomose freely. Sometimes the process of a ganglionic corpuscle is continued into the axis cylinder of a nerve fibre. To those parts

of the nervous system containing ganglionic corpuscles, as well as nerve fibres, the term nervous centre is applied.

The spinal cord is a cylindriform column of greyish white nerve substance which extends from the medulla oblongata, where it becomes continuous with the brain, to about the second humbar vertebra, there tapering off into a fine filament, the filum terminale. It is covered externally by a tough membrane, the dura mater, which at the same time forms the periosteum of the spinal vertebræ. Closely investing the spinal cord is a delicate and highly vascular membrane called the pia mater, the outer layer of which becomes continuous with the inner layer of the dura mater, thus forming a short bag, the epithelial lining of which secretes a serous fluid, the arachnoid. If a transverse section of the spinal cord is taken, it will be seen to consist of both white and grey matter, the white matter being external, and the grey arranged internally somewhat in the form of two crescents with their convex sides meeting at the centre of the cord. A deep fissure, called the anterior fissure, penetrates almost to the centre of the cord in front, and a similar one, deeper but less wide, the posterior fissure, divides it in the middle line behind. Hence these two fissures, the anterior and posterior, leave but a narrow bridge in the centre of the cord which is pierced throughout its length by a minute canal.

The white and grey matter referred to differ in structure. The former is composed of connective tissue and delicate nerve filaments which, running longitudinally, are only seen when cut across transversely. The latter, in addition, contains ganglionic corpuscles. Each half of the cord is divided into three portions, the anterior, posterior, and lateral columns, by diverging bands of nerve fibres. Some of those arising close to the anterior column unite with similar and parallel bundles arising from the posterior column to form the trunk of a spinal nerve. The posterior root before uniting displays an enlargement consisting of nerve cells which is termed the ganglion of the posterior root. In this manner the spinal cord gives off thirty-one pairs of nerves in two lateral series, which leave the cord through openings in the vertebræ called intervertebral foramina. The spinal nerves are distributed for the most part to the skin and mucous surfaces, and to the muscles. The function of these nerves,

and that of the spinal cord itself, must now be briefly described. If by such means as burning, cutting, or galvanizing, the trunk of a spinal nerve is irritated, not only is acute pain felt, which is referred to all parts of the skin supplied by filaments of that nerve, but all the muscles which that nerve supplies contract. If however a branch only of the nerve is irritated then the above effects are confined to those parts supplied by that branch. But if the posterior root of the nerve is irritated, only half the effects occur—intense pain is felt, but no muscular contractions take place. If, on the other hand, the anterior root alone is irritated no pain is felt, but the muscles to which the nerve is supplied contract. For all the power which a spinal nerve possesses of producing sensation lies in the fibres of which its posterior root is composed, which are hence called sensor or afferent. Similarly, its power of producing muscular contractions lies in the fibres of its anterior root, hence called motor or efferent. When a nerve is irritated it is presumable that some change takes place in it in both directions; but sensor nerves are connected with nothing which can demonstrate that change but the central nervous system, and motor nerves with nothing which can show an effect save the motor cell, that is, the muscle. Hence, if on section of a spinal nerve, which contains both motor and sensor fibres, the distal end were irritated muscular contractions would take place in those muscles to which the nerve sent filaments; but no pain would be felt until the proximal end of the divided nerve were irritated.

The spinal cord itself contains both sensor and motor fibres, so that in its relation to the brain it is a mixed nerve, conveying afferent impulses to it, and efferent impulses from it. The latter cross in the medulla, but leave the cord on the same side through which they have travelled. The afferent impulses cross to opposite sides of the cord to that on which they enter, before they proceed to the brain. But the spinal cord is not only a conveyor of impulses to and from the brain, it is distinguished as a nervous centre by its power of transferring afferent into efferent impulses, hence giving rise to the phenomena of reflex action. The conditions essential for the production of reflex action are one or more afferent, or centripetal, nerve fibres in uninterrupted communication with a nervous centre to which the impression may be conveyed, and one or more efferent,

or centrifugal, nerve fibres to carry the impulse, which has been modified or exaggerated in that nervous centre, to the contracting tissue. For instance, if the spinal cord be divided, irritation of the surface of the skin of any part below the section, though producing no sensation, will give rise to violent muscular movements. Similarly, if the cord be deeply injured in any part, and its nervous and physical continuity destroyed, irritation of any part of the body supplied with afferent nerves given off below the injury will give rise to reflex muscular contractions of those parts supplied with efferent nerves from the same part of the cord. The movements produced by tickling the soles of the feet are also instances of reflex action. There is no corresponding simplicity between an afferent impulse and the reflex motor one. The spinal cord possesses the power of converting the simplest afferent impulses into the most complicated efferent acts. All the reflex centres in the spinal cord are connected with one another and with the brain, so that reflex acts can sometimes be modified or suppressed by an effort of the will. The brain, which is the seat of consciousness and sensation, is a mass of nervous matter lodged in the skull. It is invested, like the spinal cord, with three membranes, the dura mater, the pia mater, and the arachnoid. A deep longitudinal fissure divides the cerebrum, or brain proper, into two ovoid masses which are connected below by a transverse commissure called the corpus callosum. Each half of the cerebrum is divided by fissures into three lobes, their surfaces being increased by numerous folds or convolutions. The medulla oblongata which forms the hindermost part of the brain is the direct but enlarged continuation of the spinal cord, and in its lower part resembles it in structure. Its central cavity is termed the fourth ventricle of the brain. Among the numerous and complicated nervous structures lying above the medulla may be mentioned first the Pons Varolii, formed partly of transverse fibres which sweep across from the cerebellum, or little brain, which overhangs the fourth ventricle. The longitudinal fibres from the medulla pass through the Pons and appear on its opposite side as two diverging bands, the crura cerebri. The crura cerebri enter the optic thalami before passing on to the corpora striata. The optic thalami and corpora striata are sometimes called the ganglia of the brain. Between the optic thalami is a space

termed the third ventricle. The lateral ventricles which occupy the centre of the cerebral hemispheres communicate by narrow apertures with the third ventricle.

With respect to function the cerebral hemispheres are the seat of power; but the function of all the complicated structures lying in front of the medulla is not fully made out. The medulla contains many important nerve centres, besides the crossing of the nerve fibres already referred to. The respiratory, cardio-inhibitory, and vaso-motor centres are all in the medulla.

Twelve nerves leave the brain in pairs from before backwards. All except the first two pairs, the optic and olfactory, can be traced directly or indirectly to the medulla. The cerebral nerves, for the most part, except the pneumogastric which send branches to the larynx, lungs, liver, stomach and heart, are supplied to the organs of special sense, and the face and neck.

The sympathetic system consists of a double chain of ganglia lying, as before mentioned, in front of the spinal cord. Their nerves communicate freely with those of the cerebro-spinal system. Their ganglia are supposed to be centres of reflex action to afferent impulses reaching them from those organs supplied by branches of the sympathetic. The sympathetic nervous system specially controls the functions of secretion and nutrition.

ATHOL L. MEREDITH.

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## HOME GYMNASTICS.

ROUND shoulders, a stooping gait, and a flat chest in women and girls can be cured in a very short time by fifteen minutes' exercise night and morning, in the open air or a well-ventilated room. The morning exercise had best be taken immediately after rising, before dressing for the day, as tight clothing will interfere with the free movements required. The first thing to be done is to stand erect, with the heels together, the head thrown back, the chest thrown out and the hands hanging loosely at the side. Then the lungs should be thoroughly filled with air and slowly exhausted, perhaps half a

dozen times. The arms should now be brought forward at full length in front, on a level with the shoulders, the palms of the hands in contact. Keeping the arms extended, the hands should be forcibly thrown backwards until the backs of the hands touch behind the shoulders; next, bring the palms together before the chest. Let this motion be gone through with rapidity some thirty times. In the next movement hold the arms straight above the head with the palms of the hands forward. Now, bending the hips, bring the arms down in front, keeping them straight all the time, until the fingers touch the toes; then return the hands to their original position above the head. This motion should be performed very slowly twenty or thirty times. At first it will be almost impossible to touch the floor with the finger-tips without bending the knees, but in the course of time it will be performed readily. In the third movement the lady should hold her hands close to her sides, with the thumbs still forward. Bring the arms up from the sides, thumbs still forward; then return them to their first position. The arms must not be bent at the elbows. If persisted in, this movement will straighten out stooping shoulders.

Any lady who will vigorously practise these movements twice a day for fifteen minutes will presently have a full chest, straight shoulders and sound lungs, unless her case is so far advanced as to be incurable. Of course, these same exercises will have the same effects on the frames of men as well; but, as a rule, men do not need them in anything like the same degree as women. The man who does his duty in this world is compelled to take a degree of exercise unknown to the other sex. Every lady is ambitious to be the possessor of well-rounded muscles and a full chest; and where she is not possessed of them, she tries to dupe the public into believing that they are her's by means of pads, or else she resorts to quacks who advertise nostrums for the development of the figure. Take the biceps muscle of the arm for instance—one of the most noticeable features of a woman in full dress. A few minutes' exercise each day for a year will increase the girth of this muscle two inches—enough to make all the difference between a thin arm and a plump one; and the same amount of exercise given to the chest will increase it from four inches to six inches. In addition to

the beauty given to the figure by the full chest, the increase of lung power will serve to vitalise every organ in the body, and will bring with it a clear eye, good blood, and its attendant, a fair complexion, with a springy step, high spirits, and a capacity for enjoyment unknown before. An addition of three inches in the girth of the chest means an addition of fifty inches of surface in the air cells of the lungs.

M.D.

## THE RECENT COLD SPELL.

THERE are few subjects on which the generality of people are more imperfectly informed than on those concerning the weather, and I shall try to compress into as small a compass as possible some facts which will be new to many of my readers, but which they can implicitly rely upon. We have been passing since the beginning of last September through a time of almost continuous low temperatures, with a spell of rain to begin with, then a long drought, and now again a time of abnormal rain. Into the causes of this state of things I cannot enter, nor, indeed, would it be easy to give a good explanation. What are, scientifically speaking, the characteristic features of British weather? Just these—mild but raw winters, cold summers, and an overcast sky. Ours is not, on the whole, a wet climate, as far, that is, as the amount of rain in inches goes, though parts of Cornwall, Devon, Wales, the Lake District, the Western Highlands, and the Irish Hills have a rainfall that would not disgrace a tropical Hill Country. All parts of the British Isles however, have a large number of rainy days, and, still worse, very many threatening ones. Most parts of the Kingdom have a rainfall ranging from twenty-five to thirty-five or forty inches a year, distributed pretty fairly over the twelve months, but the rain falling on any given day is usually trifling in amount. I should say that twelve hours of steady, heavy rain represent, roughly, one inch, so that the rainfall of Bournemouth would, were it continuous and heavy, be represented by twelve days and nights ; that of Lincoln by eight or nine ; and that of Staffordshire by seventeen or eighteen. Of course, tremendous downpours are not unknown though rare, and twelve inches have

fallen in a day, and three inches, at long intervals, have come down in a few hours in thunderstorms. Were our sky clear, and had we brilliant sunshine instead of our normal leaden canopy, it is probable that we should have to complain of drought much as they do at Madrid, and that too did our rainfall not diminish : but placed as we are, full in the course of the Atlantic currents, and surrounded by water, we have a damp atmosphere, a cloudy sky, and gentle rain on one hundred and fifty days a year in the south, up to two hundred or two hundred and fifty in the west and north. No day is counted wet on which less than the one-hundredth of an inch falls, that is, one ton to the acre. There is much less difference between a dry and a wet year than most people suppose, for the driest season may have a few very heavy rain storms, and the excess of one part of the year will often be counterbalanced by the deficit at another season. If the normal rainfall of a district is twenty inches, a departure of five inches either way from the mean is very exceptional. At the same time the rainfall is that meteorological element which, taking the year round, has the greatest tendency to depart from the mean, and even in England we may have a whole month without rain, and next year have six inches in the corresponding month. A season, too, may have in one year several times as heavy a rainfall as in the corresponding one of another year, but the annual fall never departs from the average to a very great degree, and it would be startling indeed to find the rainfall double as heavy in the wettest year as in the driest on record, although over small areas such a thing may have happened.

The prevalence of bright sunlight also shows considerable departure from the mean in different months and seasons. The greatest absolute amount is in the south at Hastings and in the Channel Islands, and may range from one thousand five hundred to one thousand eight hundred hours, or say five hours a day the year through : nearly half the time the sun is above the horizon. In the Midland districts the sun usually shines much less than at Bournemouth and Hastings, and at Buxton the total number of hours may fall as low as six hundred in the year or rise to nine hundred, so that a sunless week at Buxton, even in summer, is not rare. Such an occurrence at Bournemouth is a phenomenon hardly heard of. But there is often a vast difference in the sunlight in corresponding

weeks of two consecutive years, even in the same place, and the one week may have two hours, the other sixty or more. Still, even in the matter of sunlight, the longer the time taken the more closely does the total approach to the normal mean of the place. Nowhere in England or the United Kingdom do we get the magnificent weather of Spain, or Italy, or Virginia; nowhere do we have the sun looking like a ball of fire, standing out from an unclouded sky, a veritable blazing globe, as I have seen it in November in low latitudes. At the same time we could find many worse climates than ours, and a long burning spell is not an unmixed advantage to health or to the gardener. Now let us come to the temperature. Here again we find the annual mean more constant than usually supposed: a departure of three degrees is almost unheard of What does this mean? Well, just this: the mean temperature of Bournemouth is three degrees higher, the year through, than that of Wolverhampton, so that it can hardly ever happen that Wolverhampton can have a year as warm as that usually experienced at Bournemouth; nor can a very cold year at the latter, fall to the usual mean of Wolverhampton. Between Scilly and London, again, the difference of mean temperature is less than two degrees, while between the extreme south of our island and the most northerly of the Zetlands, it barely reaches six degrees. But the January temperature at Scilly is 45° ; while in London it is 39°. By March London is fast overtaking the former, and when July comes the London mean is five or six higher than that of Scilly, with a far higher day reading, so that a Summer day in London is a very different matter to a Scilly one. Between the south of England and the Northern isles there is little difference in January, but July has a temperature eleven degrees higher in the former than in the latter, with a still greater day inequality. I am of course only speaking of means or averages, and I will explain how these are roughly taken. A thermometer is placed over grass, four feet above the ground, in a Stevenson covered screen painted white, at a distance from walls, houses and trees. The daily maximum and minimum are accurately recorded, then added together. *one* is deducted, and the remainder is divided by two: the result is *the mean*. Now, not only do wide differences obtain in the means of corresponding days, but there may be wider differences of another sort which I will briefly glance at. You may have a cold night and

a hot day, or a warm night and a cool day. For instance: the highest and lowest readings of a July day and night may be 76 and 44°, giving a mean, very roughly, of 59°5, or the respective readings may be 64° and 58°. In the former case the sky has probably been bright, with hot sunshine in the day and rapid radiation at night ; in the latter a wet day has accompanied a dull night. In this way it often comes about that a spell of brilliant weather, with high day temperatures, will actually be below the mean of the season, while people may be talking and complaining of intense heat, while at another time the mean may be much above the average although the cool cloudy days lead people to talk of its being strangely cold. Almost at any season there may be a difference of 40° between the mean of corresponding days in different years, though of course this is rare indeed. The greatest departure of months, weeks and days is in winter, the least in summer. For example: the mean of the coldest mid-January day in London is 35°, but January 20th, 1838, had a mean of 10°·7. A mean of 20° is, however, most unusual. On the other hand, the hottest July day of modern times had a mean of 79°5, say, 15° above the mean, against a January deficit of 25°, while a July day this year had a mean of 49°: a deficit of 15° as against January, 24th, 1834 with one of 52°7, an excess of, say, 17°. In London, the thermometer has very occasionally, at long intervals, fallen to zero, and even three or four degrees below, while the highest readings have been 96·6 and 96·8 in July. On the other hand the lowest recorded reading in the south of Scotland has been twenty-two below zero, and a day in Scotland, with a mean of zero, has been recorded. Once every other year the thermometer will touch 90° in London, but in the following winter the minimum may not fall below 23°, giving an annual range of 70°.

At Ashdall, Alton, Hants, a maximum reading of 101° was recorded in July 15th, 1881 : this as far as I know was the highest reading ever recorded in England by verified thermometers properly placed. So local however are very high or very low readings in the United Kingdom, that in July, 1881, the highest daily reading at Cockermouth only once exceeded 70°. Again, in the great frost of January, 1881, while the minimum fell 15°, 20° and even 22° below Zero in some places, it was as high as 24° above Zero at Valencia, 26° at Guernsey, and 29° at Scilly.

A Fellow of the Meteorological Society.

# DIETETIC NOVELTIES.

MILK IN POWDER is a valuable preparation, lately introduced by the Swiss Milk Company, of St. Gall, (London representative, Mr. Carl Lawinski, 50, Mark Lane, E.C.) It consists of pure cows' milk, reduced to the form of a powder, all the water being removed. The principal advantages claimed for this preparation are that owing to the removal of the aqueous portion, it will keep much longer than any kind of condensed milk would, that from the nutritive point of view it is also superior, and that it is consequently best adapted for invalids and young children ; further, its dry character and the small bulk which it occupies, render it peculiarly handy in the case of persons travelling. It has for these and other reasons been largely employed for military and naval commissariat purposes, especially in the German and Belgian services. Careful analysis has shown that this pure compressed extract contains in every hundred parts 89½ parts of Casein and Lactose. It is readily miscible with water, hot or cold.

For those individuals who prefer to have milk and sugar together, the same firm prepare a sweetened Extract of Milk, which is made from pure cows' milk and refined cane sugar. This is excellent, but on various grounds we should recommend the unsweetened milk in powder.

A third novelty introduced by the Swiss Milk Company is Milk Chocolate Powder ; two teaspoonfuls of this suffice to provide a cup of excellent chocolate, within the short space of one minute.

No household or traveller should be without these valuable and readily prepared articles of diet.

# NOTES AND NEWS.

MILK ADULTERATION.—A singular instance of the impunity with which the adulteration of milk is practised in London came to the knowledge of the writer of this paragraph some time ago. A strange lad, carrying two milkpails, entered the shop of a respectable eating-house keeper, in Southwark, and asked for a pennyworth of pudding and a mug of water. Upon being supplied, he proceeded to eat the pudding, and, after putting down his penny, poured about half a pint of the water into one of the milkpails, saying, "That will pay for the pudding." On being remonstrated with by the woman who served him, the boy coolly replied that that was the way in which he always got pudding, and that he didn't "go short, either" and then resumed his "milky way," to vend the contents of his cans as "Milk from the Farm," at fourpence a quart. If all milk-boys were as fond of pudding as the one in question, and equally unscrupulous in their method of procuring it, the customers resident at the end of their rounds would have what the Americans would call a "watery time."

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THE PUBLIC HEALTH.—The deaths registered last week in 28 chief towns of England and Wales, showed an annual rate of 17·5 per 1,000. In London, the annual death rate per 1,000 fell to 16·4, that of the three previous weeks having been 18·0, 16·2, and 17.5.

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WEAK CIDER.—"How much cider did you make this year?" inquired an American farmer of another who had given him a specimen for trial. "Fifteen barrels," was the answer. Another sip. "Well, if you had had another apple you might have made another barrel."

# Diet and Hygiene:

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## PRICES, PAST AND PRESENT.

By DR. A. CRESPI, Wimborne,

*Formerly Editor of The Sanitary Review.*

(Concluded from page 405.)

AT the gathering of the British Association at Manchester, last year, no address, except that of Sir Henry Roscoe, was awaited with greater curiosity than that of Mr. Robert Giffen, the eminent statistician. Every one, who knew his attainments and remarkable accuracy and had read his interesting reports on commercial questions, expected another of those thoughtful addresses for which he is so distinguished. Perhaps there is no subject on which he could have spoken more authoritatively than the recent rate of material progress in England, though probably most political economists had drawn from the data at their command the same conclusions—that the progress of Great Britain is less rapid than fifteen years ago, but still sufficiently pronounced to silence complaints. Most people had expressed a different opinion, and complaints of bad trade, shrinking profits and want of employment had been made with great persistence. Would these complaints bear investigation? Let us see. When the prosperity of a nation is declining three or four unmistakeable signs can be found—population increases more slowly, the death rate rises, pauperism becomes more common, and savings are largely drawn upon. The reader must however be cautioned not to

make the vulgar error of assuming that prosperity and a rapid increase of population stand to each other as cause and effect. No doubt such a connection is popularly supposed to exist, and when trade is flourishing and times are good more people marry and families are larger. Reflection will however convince us that with greater self-restraint and forethought wealth might increase very rapidly while the marriage and birth rates need not advance. One of the chief drawbacks to increased prosperity and greater abundance of employment is the stimulus given thereby to earlier marriages. Nevertheless while thrift is so rare it is fairly correct to assume that the marriage and birth rates will keep high as long as prosperity is general, and with the decline of prosperity will diminish. Of late the population of the United Kingdom has grown with ever increasing rapidity, the rate advanced from ·75 per cent. in 1855 to 1·0 in 1885, while in England the figures were respectively 1·25 and 1·45. This does not look like diminishing prosperity!! Pauperism has decreased from 4·2 to 2·7 per cent; Savings Bank deposits have increased from £34,800,000 to £94,063,000; the assessment of house property has increased 3·6 per cent. per annum; the death rate is falling fast, so is the percentage of disease, and the Post Office business, another infallible index of progress, presents no falling off. Pauperism, sickness and death are all showing diminution, and if that be the case, and the figures are endorsed by every patient enquirer, it is impossible that the prosperity of the nation, or, indeed, of any but small classes, and that perhaps from accidental and temporary causes, should be decreasing. When the consumption of the principal articles of commerce is investigated the same facts stand out distinctly—that not a single large class shows diminution except alcoholic stimulants, and the less of them used the better for everyone, and that, although the rate of increase may not be so high as formerly, it is still sufficiently high to be satisfactory. The figures frequently quoted do not however satisfy the irrepressible *laudator temporis acti*: in part his incredulity and dissatisfaction must be attributed to the proneness of the commercial mind to complain of depression with little provocation: in part to the rate of progress being less decided of late, but, principally to a third cause to which I shall direct attention. Whenever prices are rising

people are fairly contented, and a feeling of confidence and hope, which spurs them on to redoubled exertion seems general, but when prices are steadily falling the opposite is the case, and people complain that they are being ruined. That the purchasing power of money is rising, from causes I will not pause to investigate, is certain, and if the increased purchasing power is put at 25 per cent., it means that £4 will purchase as much as £5 would have done 12 years ago. Income tax assessments bear out these assumptions, and Mr. Giffen showed that when proper corrections were made income tax had been paid on £787,000,000 a year instead of on £822,000,000: the latter the figure that, had the highest rate of progress ever known continued, would have been reached, or, to state the matter differently, the increase of the national income has only been 4 per cent. lower than in the days of greatest prosperity, and when due allowance is made for the raising of the lower limit of the income tax, even this decrease vanishes. Unfortunately the depression of agriculture cannot be explained away—it stands out a sad and depressing fact, the full importance of which has hardly yet been realised. The bad seasons from 1874 to 1880 have passed away, the weather is up to the average, the crops show no material diminution in bulk, nevertheless agricultural incomes are falling. Enhanced prices are most improbable, for supplies of cheap food are being poured into the United Kingdom from countries with cheaper land, better climates, and in some cases, like India, with more abundant underpaid labour, and with these conditions the English farmer cannot now successfully compete. The only remedy will be to rearrange agricultural occupations, to place them on a better footing, and to introduce cheaper and more perfect methods of cultivation.

As some slight set off it must not be forgotton that with the migration of the population to large towns agriculture bears every year a smaller ratio to other industries, and that the impoverishment of a large, most deserving and most industrious class does not materially affect the general accumulation of wealth, the increase of the national income, and the demand for labour.

The proof is capable of greater completeness. No one not wishing to make himself ridiculous would try to prove that wages were higher in 1814 than at present; still less would he maintain

that in 1779 the labourer, skilled or unskilled, earned more: the favourite contention however is that in those times money went farther, so that though wages were lower greater abundance was within the reach of the poor. An hour's conversation with some of the aged and shrewd peasantry of South-East Dorset, whose memories extend beyond the Repeal of the Corn Laws, would dispose of this idol of the imagination. They can furnish experiences that would convince any one open to reason. What about wages only two-thirds those now ruling in the district, with food twice as dear? The Dorset labourers know what the good old days mean.

The kindness of Messrs. Travers & Sons, of 119, Cannon Street, has placed within my reach some curious reprints of price-lists, issued by their firm a century ago. The first I shall quote is as follows:—

"London, September 9th, 1779.

"As we were likely to have had a large quantity of Sugars at market this week, we waited in the expectation of purchasing at moderate prices, and to have enabled our friends to have done the same, but unfortunately we have just received information of the loss of Grenada, one of our principal Islands, which has caused an advance in raw Sugar of full 4s. per cwt., and as our other Islands are likewise in danger, we don't see a prospect of their being lower, unless the two Fleets, now coming home, should all arrive safe: but this in the present situation of affairs is more than can be expected."

"Refined Sugars are very scarce and dear, but will be more plenty in a month or six weeks and hope cheaper as many of our refiners are now at work, and by that time there will be a pretty large supply in the market. We shall be glad to see you in town if it suits your convenience, but if otherwise shall endeavour to execute any Orders you may favour us with on the same terms and with equal attention.

We are, Your obedient Servants,

SMITHS, NASH, KEMBLE & TRAVERS."

Appended to this trade circular follows the annexed list of prices, which disposes of the greater cheapness of grocery in 1779.

| | Per. Cwt. |
|---|---|
| Raw sugar - - | 53s. to 80s. |
| Dry „ - - | „ „ |
| Lumps - - | 84s. to 90s. |
| Single loaves - | 86s. to 94s. |
| Molasses, to buy - | 18s. 6d. |
| Brown candy - | 10½d. to 11d. |
| Finest Bohea tea - | 5s. |
| Inferior „ - | 4s. 10d. and 4s. 11d. |
| Good common green tea | 7s. 2d. and 7s. 3d. |
| Currants - - | 51s. and 52s. in package. |
| Raisolis - - | 56s. |
| Turkey figs - - | 56s., ordinary. |
| Belvideras - - | 30s. to 32s. |
| Prunes - - | 40s. |
| Rice - - | 38s. |
| Poland Starch - | 43s. |

A friend engaged in the grocery business assures me that these quotations are *exclusive* of custom duties, which were, a century ago, very heavy, and were levied on nearly all articles of food. When this is borne in mind, the retail prices must have been still more decidedly above those of our day.

The second paper I shall quote is as follows :—

"London, 17th December, 1814.

"The Tea sale being ended we beg leave to hand you the result. Boheas, of which there is no great supply, have sold dear, and we are sorry to say that Congou Teas cannot be afforded much under the September prices, and the good strong Teas and fine Souchongs are rather dearer ; the low Congous in the large package are as usual dusty and objectionable. At 6s. 7d. to 6s. 9d. we shall be able to send a clean, well flavoured Tea that will please, and the kinds at about 7s. as well as the good strong at 7s. 3d. to 7s. 4d. also deserve attention. Twankay Teas, the inferior sorts in particular as well as fine Blooms and Hysons, have sold very High, under an idea of Foreign demand ; but in the event of dissappointment, we think that Green Teas will prove unsafe. The sale generally has gone above expectation, and while uncertainty prevails as to the time of taking off the war duty of £45 per cent. we cannot advise free purchase. Raw Sugars just now are not much in request, the late large sales having spread rather a plentiful supply through the country, yet as the prices do not at all give way we think our friends need not hesitate to buy in moderation, but purchases beyond this, upon the hope of much further advance, cannot be thought prudent if the

diminished consumption and consequent great reduction last Spring be at all remembered. Refined and Ground Sugars are rather lower and the Market is better supplied. We have in a general assortment of New Fruits of good qualities and at reasonable prices. More Currants expected. Your orders will oblige,

Your obedient Servants,

JOSEPH TRAVERS & SON.

19, Swithin's Lane.

| | £ | s. | d. | | £ | s. | d. | |
|---|---|---|---|---|---|---|---|---|
| Bohea - - | | 6 | 1 | to | | 6 | 2 | |
| Congou kind - - | | 6 | 3 | „ | | 6 | 4 | |
| Good Souchong - | | 8 | 6 | „ | | 10 | 0 | |
| Superfine do. - | | 11 | 0 | | | | | |
| Caper do. - | | 9 | 0 | „ | | 11 | 0 | fine. |
| Genuine Hyson - | | 11 | 9 | „ | | 12 | 3 | |
| Good „ - | | 12 | 9 | „ | | 13 | 3 | |
| Fine „ - | | 13 | 9 | „ | | 14 | 0 | |
| Gunpowder Hyson - | | 15 | 0 | „ | | 18 | 0 | fine. |
| Good common coffee, roasted | | 1 | 10 | „ | | 1 | 11 | Damaged lower. |
| Middling do. | | 2 | 0 | „ | | 2 | 2 | |
| Best do. | | 2 | 3 | „ | | 2 | 4 | |
| Plain cocoa - - | | 3 | 10 | Fine ditto | | 4 | 3 | |
| Cocoa nuts - - | | 4 | 3 | to | | 4 | 9 | |
| Cocoa nibs - - | | 4 | 3 | | | | | |
| Black pepper - | | 3 | 0 | „ | | 3 | 1 | |
| White do. - | | 4 | 10 | | | | | |
| Cayenne do. - | | 9 | 0 | | | | | |
| Jamaica ginger - | 11 | 0 | 0 | „ | 16 | 0 | 0 | |
| Sago - - | 8 | 0 | 0 | „ | 9 | 0 | 0 | |
| Isinglass - - | | 11 | 0 | | | | | |
| Tapioca - - | | 1 | 1 | „ | | 1 | 2 | |
| Arrowroot, genuine and fine | | 2 | 6 | Second quality 1s. 6d. | | | | |
| Vermicelli and macaroni, fine | | 1 | 5 | in boxes of 7lb. to 28lb. each. | | | | |
| Button blue - | | 1 | 3 | to | | 1 | 7 | |
| Brown sugar, West Indian | 5 | 4 | 0 | | | | | |
| Middling do. - | 5 | 8 | 0 | „ | 5 | 12 | 0 | |
| Good and fine do. - | 5 | 15 | 0 | „ | 6 | 4 | 0 | |
| Ground sugars, genuine tips | 5 | 3 | 0 | „ | 5 | 5 | 0 | |
| Dried sugars - - | 5 | 12 | 0 | | | | | |
| Lump brown - - | 7 | 9 | 0 | „ | 7 | 14 | 0 | and £8 15s. 0d. |
| Molasses - - | 2 | 5 | 6 | | | | | |
| New currants - | 5 | 11 | 0 | | | | | |
| Prunes - - | 3 | 2 | 0 | „ | 3 | 3 | 0 | |
| Turkey figs - - | 5 | 5 | 0 | | | | | |
| Turkey raisins - | 4 | 3 | 0 | „ | 4 | 4 | 0 | |
| Jordan Almonds - | 21 | 0 | 0 | | | | | |
| Provence do. - | 8 | 10 | 0 | | | | | |
| Valencia do. - | 10 | 0 | 0 | | | | | |
| Carolina rice - | 4 | 0 | 0 | | | | | |
| Poland starch - | 4 | 0 | 0 | „ | 4 | 4 | 0 | |

In curious contrast I quote from the Produce Markets Review of October 29th, 1887, and find the London Prices at the ordinary wholesale terms of credit, as follows :—

| | | |
|---|---|---|
| Cocoa, flake - | - | £2 17s. od., £3 13s. od. and £4 3s. od. per cwt. |
| Coffee, Jamaica | - | £4 7s. od. to £5 os. od. |
| „ Mocha | - | 5 15 0 „ 6 10 0 |
| „ Ceylon | - | 4 15 0 |
| „ Roasted, clean | - | 1 1 per lb. |
| Currants, new, fine | - | 1 10 6 to 1 11 0 per cwt. |
| „ very fine | - | 1 11 6 „ 1 12 6 „ |
| „ Patras | - | 1 11 0 „ 1 12 0 „ |
| Sugar, per cwt. :— | | |
| Dry crushed | - | 16 9 „ 17 6 |
| Raw - | - | 13 9 „ 14 9 |
| Demerara - | - | 17 3 „ 17 9 |
| Molasses, good | - | 8 0 „ 10 0 |
| Persian dates, per cwt. | - | 4 8 0 |
| Figs, Elemes, new, in boxes | | 2 15 0 „ 3 5 0 |
| Prunes, new - | - | 1 11 0 „ 1 14 0 |
| Muscatels - | - | 2 15 0 „ 3 0 0 |
| Rice, per cwt. :— | | |
| Arracan - | - | 8 6 „ 14 0 |
| Java - | - | 15 0 „ 18 8 |
| Patna - | - | 11 6 „ 1 0 0 |
| Tea, per lb. :— | | |
| Ceylon - | - | 9½ „ 1 1 |
| Congou, common | - | 4½ „ 7 |
| „ finest | - | 1 7 „ 2 0 |
| Hyson - | - | 10 „ 2 0 |
| Orange Pekoe | - | 6 „ 1 5 |
| Souchong, good | - | 8½ „ 1 6 |
| „ finest | - | 2 0 „ 2 6 |

Were it worth while the list could be indefinitely extended, but the above will suffice. When the greater enjoyment of life is remembered which an abundant and cheap supply of food nearly always brings, we cannot deny that, on the whole, there must have been material advance. Men must be happier, more comfortable and cheerful. If any plutocrat doubts the value of riches as increasing his enjoyment of life, he can put his sincerity to the proof by making his property over to some idiot asylum or orphanage, and working for his bread. It is true that from the pedestal of the philosopher, greater abundance of the necessaries of life does not necessarily imply that more is made of life. There is something despairing but not unnatural in the words of Walter Bagehot—"How painful is the conclusion that it is dubious whether all the machines and inventions of mankind have yet lightened the day's labour of a human being. They have enabled more to exist, but these people work just as hard and are just as mean and miserable as the older and the fewer." In Mrs. Oliphant's Literary History of England a remarkable passage occurs, which I transcribe—"All is not absolute good or advantage to the human race; but yet the race is stepping onward: it discovers new powers,

it learns new ameliorations, and if it also makes proof of much suffering and danger it finds new defences and medicines for them. Whether progress makes the general mass of mankind really happier or better will always be a moot question; but yet it improves their position from one generation to another. It goes on making certain sorts of evil obsolete as well as certain sorts of good: it overcomes the coarser conditions of life, gives universal protection, better shelter, and opportunities before unknown. It is in fact a real progress, even through a thousand drawbacks, and every age leaves some foundation upon which the next can build." Something loftier and grander inspired the faith of Abbé Gratry when he exclaimed "One thing astonishes me: it is to see Christians despairing of the world, and of its progress on the way to justice." Many wrongs still call for redress, many evils for remedy, many reforms, national and social, remain to be carried out, but nothing is gained by representing the condition of the country as worse than it really is. That nation will advance most rapidly which holds in the highest veneration truth and justice: that people which is the most thrifty, temperate, industrious and intelligent will command in the largest measure, the comforts and luxuries of life. Nature is profusely bountiful, and produces more rapidly than man can consume or even destroy. To put back human progress by ill-considered measures or, by disorganising society, undermining confidence, and weakening respect for lawfully constituted authority would do incalculable injury. No permanent good could result to any nation from such conduct, and the late Professor Clifford's warning is applicable to nations as well as to individuals—"This is why we ought not to do evil that good may come, for at any rate this great evil has come that we have done evil and are made wicked thereby."

## THE HYGIENE OF EDUCATION.

So many years have elapsed since the *dictum* "Spare the rod and spoil the child" was laid down that the whirligig of time, if not, indeed, our own improved knowledge, has brought about a disposition to transpose the two verbs in this proverb. Now and then some

case of excessive corporeal punishment comes to light, and the feelings of detestation and disgust with which it is received shows what the public opinion is upon this question. Schoolmasters, in dealing with matters of scholastic discipline, are too often tempted to adopt such a form and extent of punishment as shall be deterrent to others as well as to the delinquent pupil,—to make an example of the latter, in fact. Teaching involves numerous trials of temper and endurance, which constitute a heavy, continual strain, and render it one of the most difficult callings to discharge thoroughly and honestly. Where corporeal punishment is practised, the habit of beating the pupil too often grows upon the master, and makes him unkind. He thinks that he is within the safe limit, but he is frequently carried beyond it ; and this condition of mind, by degrees, insensibly becomes a part of his character till he is absolutely cruel.

There is danger of excess, too, in another mode of correction ; we refer to the custom of imposing severe mental tasks, long lessons to learn by heart, and the like. The mischief here is two-fold ; first, the pupil acquires a dislike for his studies, not seldom resulting in his growing up a dullard and an ignoramus ; secondly, there is great danger of injury to his mental powers and physical condition.

Boys and girls are not habitually bad ; nay, the reverse is the case, and, until spoiled by bad example, or by bad treatment, they are naturally frank, candid, and anxious to please their elders. "Just as the twig is bent, the tree's inclined" ; and in nine cases out of ten, where a child, not previously affected by ill example or usage, exhibits signs of indifference to his duties, the real cause will probably be that he is ailing, and is consequently unequal physically to what is required of him. To punish him by increasing the task is as decided an act of cruelty as it would be to flog a horse nearly to death because his strength is inadequate to enable him to drag his burden faster or further.

The physical development of youth should go hand-in-hand with the intellectual, and all attempts to force the culture of the mental at the expense of the bodily powers are as cruel as they are mistaken. It is possible, for a time, to press forward the development of the mind while neglecting the body ; but, sooner or later, the necessity of keeping the latter in a proper state of health makes itself appre-

ciable, and the child either droops away and dies, or, chancing to reach adult life, it leads a sickly, miserable existence.

Goëthe has eloquently remarked:—"It is, indeed, a beauteous sight,—one of the most lovely this earth affords,—to view the growth of the mind, the expansion of its powers under the influence of right moral and intellectual culture, and to watch their exercise in the still feeble and delicate body of a child. But, lamentable and fatal is the mistake, to attempt the cultivation of the intellect ere yet the soil which is to support it has been prepared. We may plant the oak in a china vase, fit only for the reception of delicate flowers, and for a while it may flourish; but as the roots expand the fair vase is shivered."

Many other authors might be quoted; while few of us, unfortunately, need go beyond the limits of our own connections for personal examples of the folly and mischief of forcing the mind at the expense of the body.

It is most important, moreover, that all engaged in teaching should thoroughly understand not merely the mental training of children, but also the great questions of food, exercise, recreation, &c., all of which assist in making children healthy, active, and intelligent; as well as the essential matters of air, light, heat, and ventilation, the presence of which in right proportion will produce health on the one hand, while their absence or insufficiency will most certainly tend to disease or deformity.

M.P.

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## FLESH DIET AND VEGETARIANISM.

(From the Croonian Lectures, delivered by Dr. C. B. RADCLIFFE, at the Royal College of Physicians, London.)

I CONFESS to being a heretic in matters of diet. Do what I will, I cannot bring myself to accept the current belief that butcher's meat is food *par excellence*, and that all other food is little more than "padding." On the contrary, I feel convinced that views and practices in this respect have changed infinitely for the worse, and

that herein, perhaps, may be found one main reason why various nervous disorders are so numerous and often so difficult to deal with.

Few persons with any practical experience will, I think, maintain that the diet of "Training," which is relatively rich in lean meat and poor in the other constituents of diet, especially in the oleaginous, can be kept up for any length of time with absolute impunity. The fact, indeed, is simply this, that an extraordinary degree of muscular strength is got up, not by the diet simply, but by the whole plan of training, in six weeks or thereabouts, and that, afterwards, the man in training gets out of "condition," every day perceptibly losing muscular energy and firmness and pluck, and becoming headachy, feverish, and out of sorts in every way.

Often, indeed, do I meet with persons who are just in the state of those who have been over-training, who are not "up" to any work, bodily or mental, and who tell you that they cannot for the life of them tell why they are so, for they have not been taking it out of themselves by work of any kind, and have been doing all they could to keep up their strength, drinking beef-tea by the quart, eating meat three times a day, and so forth, and who get well with little else to help them when they begin to eat like other people, taking everything, and not too much of anything,—and who do not get well until they do as just stated.

And most assuredly the actual experience of different people is not to be appealed to in proof of a contrary conclusion. The strapping gillie of the Scotch Highlands, the chief staple of whose food is oat-meal, with a little milk, is certainly not wanting in muscular strength and power of endurance; on the contrary, as every one will admit who has had to keep up with him in a hard day's deer-stalking, for he is "all wind and limb" when his master for the time being is panting and staggering. Nor is the case of the gillie different from that of the Italian labourer, who is seen at work unloading the small coasting corn-vessels on the beautiful shores of the Bay of Naples, whose food is made up chiefly of Indian-corn pudding or polenta, with a little macaroni and a little oil. This man may be lazy enough, but when called to work he works well enough, as is sufficiently proved by the light way in which he dances from the vessel over the black sand with the heavy sack on his shoulders, and

this not once or twice only, but for hour after hour, even in the heat of the day.

It is certainly possible for people to enjoy excellent health upon the most different kinds of food. No doubt there are individuals who take kindly to animal food, and others who do not. Most probably a properly mixed diet is best for the generality of people, in this country at least ; but all the evidence, as I can read it, is against the notion that meat is to be the food which must be had at any price. At all events, I cannot help thinking that the present practice of urging persons, at all weakly, especially children, to eat as much meat as they can, may have not a little to do in causing the development of many nervous disorders, and in deranging the health in other ways besides,—perhaps in causing liver and kidney and other glandular disease, by over-taxing the eliminating powers of these organs.

It is high time, I take it, now that meat of all kinds is only to be had at high prices, that all people, and particularly the poor, should be shown that animal food is not so essential as they believe it to be. It is high time, for instance, that the English poor should be taught to imitate the French in their diet. But I must not dilate upon these matters, nor must I attempt to lay down any definite rules of diet. Indeed, all that I must allow myself to do is to re-assert my belief that excess of animal food, relative or actual, is a very important cause of many disorders of the nervous system, and that in the prevention and treatment of these disorders it is all-important that the oleaginous and farinaceous articles of diet, rather than the nitrogenous, should be fully supplied. I maintain, indeed, as I have long done, that the nerve-tissue (which consists, in great measure, of a kind of fat) is starved if the hydro-carbons are withheld, and that this withholding is one main reason for the speedy breaking-down in overtraining ; and I further believe that this is not the only way in which the want of hydro-carbons operates mischievously. Indeed the fact that muscular work shows itself in the amount produced of carbonic acid, convinces me that the hydro-carbons are necessary for action as well as for nutrition in nerve and muscle,—are necessary, perhaps, in keeping up the electrical charge of nerve and muscle which, as I believe, has so much to do with nervous action and muscular action.

# THE USE OF STAYS.

At the recent meeting of the British Association held at Bath, a paper was read in the Physiological Section upon the use of stays. The joint authors, Professor Roy and one of his colleagues in the University of Cambridge, were enthusiastic in praise of corsets, alleging that, worn in the daytime during the principal hours of exertion these "strange disguisements," as an old writer once called them, are beneficial; and that "reasonably tight lacing" increases mental and physical activity, by causing a more liberal supply of blood to the brain, muscles, and nerves. At the same time, they condemned the extreme practice of tight lacing. The theory of the Professor and his colleague sounds logical at the first: but, upon closer investigation, it will be seen that they assumed much more than they proved. Admitting, for argument's sake, that Nature has been so remiss in her arrangements that it is necessary to resort to some means of increasing the flow of blood to the head, &c., by robbing the abdominal viscera, is the practice of compression the most sensible? Blood is forced from the abdominal and thoracic viscera to the head and to the surface of the body by firm pressure; but is this an unmixed benefit to the wearer of tight stays? On the contrary, the gradually reddening nose, the headache and frequent peevish irritability ("increased mental activity"!) the laborious respiration, and the inability either to assume an easy position, or to move about with grace and freedom (how about "increased physical activity"?) too plainly demonstrate that "reasonably tight lacing" is fraught with discomfort and danger. So long as women are to be found who, to gratify personal vanity, or to conform with fashionable notions, will submit cheerfully to any inconvenience, it is little short of folly to advocate "reasonably tight lacing." Who shall decide, too, what constitutes this condition? Besides, if a woman, through physical weakness, needs some kind of support for the back and chest, it should be supplied by the use of some sort of soft material, and not of unyielding corsets, rendered hard by metallic or other inelastic substances.

M.B.A.

## EDIBLE BIRDS' NESTS.

ALTHOUGH almost unknown in this country, there is a nest something of the same style found in some parts of America, but which has not yet, we believe, been utilised for making the notorious soup. The true edible bird's nest swiftlet is a native of Ceylon and of the Malay region, and it builds in caves where materials for architecture are necessarily scanty, or on sea-cliffs of inaccessible height. More than most other swifts, this tropical species is a confirmed highflyer, hawking for its food around the summits of the mountains, and much indisposed to settle on the ground upon any pretext. Hence it has learned to carry to the furthest possible limit the family habit of making a nest quite literally "all out of its own head," without the slightest extraneous aid of any sort. The best and cleanest nests, which fetch the highest price, are composed entirely of pure mucus from the salivary glands. The material in its hardened state is brittle, fibrous, white, and transparent, "very like pure gum arabic, or even glass;" and the inner lining consists of nothing but small soft feathers. Inferior nests, which command a smaller price in the Chinese market, are composed in part of dry grasses, hair, and down, welded together by the fibrous gummy secretion. The idea of using such things for food is, doubtless, strange to European palates; but when we ourselves give up colouring jellies with defunct cochineal insects, it will be time for us to cast the first stone at the Oriental cuisine. In shape, the nests are much like hanging pouches glued on the wall of the cave by their own mucus, and containing each two eggs. All the swifts, indeed, are very small layers, as is invariably the case with the more active animals. The "take" is in October, and most of the nests go to China, where the soup ranks as a high luxury. The soup made with these nests may be very delicious, but it is a question whether the quality and flavour does not depend more upon the stock or *consommé*.

B.C.

## NASTY NOSTRUMS.

To anyone fond of statistics, the following exercise will prove interesting:—Take a daily paper, read, mark, and digest the

announcements respecting medicines, methods, and their auxiliaries in the way of health-reviving and life-prolonging articles—in short, any measure that may tend to produce in some degree the wonderful result of the much searched-for elixir of life. Then make a calculation thus. By using "Mussel's Pills" you prolong vitality at least five years; by a pious attention to "Mother Treacle's Soothing Syrup" you add another five; the wonderful charm of the "Old Man's Liver Pad" credits you with at least two; and the timely application of "Gullaway s Ointment" can be indisputably reckoned at three, and so on. Please be careful! Do not add an item more than you feel perfectly justified in doing, nor credit any particularly favourite electric belt or magnetic hair brush with other than ordinary consideration. We all have our weaknesses, I know, but for once let us be just before being generous. Necessarily the working out will take some time. There is an extensive array of bottles, a perfect army of boxes, and an almost endless list of miscellaneous mysteries in the way of revivers and life prolongers. Still it is satisfactory continually to feel that by a certain well-studied system and a strict attention to detail you can lick old Parr, vulgarly speaking, into a cocked hat, and meet Mr. Methuselah on equal terms.

Now, let us reverse the calculation. If we omit to use such indispensable remedies as these are alleged to be, instead of a sum in addition, we must go through one in substraction. Take off five years because we have omitted to resort to a certain pill, another five owing to our indifference to the merits of a particular appliance, and so on; as we dot down these figures on paper, it must soon become evident that we ought to be *minus* years at all, that, in point of calculation, we could not have been born, but should have remained at something less than nothing. The logic of the case is indisputable, and we have arrived at the *reductio ad absurdum.*

Speaking more plainly, people fret and fume, under their real or imaginary ills, and with the desperation of the drowning man catching at a straw, they grasp at the first thing to hand as a means to the end—the end being Health. It is this which constitutes the harvest of quacks, which swells the plethoric ranks of the duped. If gulled by some widely-advertised preparation, which appears to be enjoying the greatest popularity and to possess most extraordinary

merits, any one gets hold of a very fraudulent nostrum, it may mean a ruined constitution and a premature death. It is only the other day I read of an analysis made by Dr. R. G. Eccles of a nostrum extensively sold "as a tired brain and tired nerve recuperator, which is claimed to give lasting powers to the system, while free from all the enslaving qualities of morphine, opium, and alcohol." To render the deception more complete and allay all suspicion, it is given out to be the extract of an article of food in daily use. The result of the examination showed that what purposed to be a nerve tonic was simply a compound containing morphine; that it had no right to the claims made by its sponsors; and, in reality, was a dangerous compound, which, in ignorant hands, and with the printed assurance on each bottle that it will do the consumer no harm, might work incalculable injury. How many hundreds of gallons of nauseous nostrums are bought by the lower class of the people to send the babies off to sleep! These poor little scraps of humanity are dosed and drugged until they are in a semi-state of torpidity. A crying child is not a desirable addition to a quiet house, but to the woman who has to earn the daily bread it is an encumbrance that cannot be tolerated. A friendly neighbour suggests syrup. The bottle is sent round, the powerful narcotic administered with a free hand, and baby is left in its cot fast asleep. The mother goes out with a parting injunction: the dose must be renewed when the child wakes. Or she may commence her work at home with excellent results: her hands are free, and her time her own, so she does not grudge the trifling expense nor give a second thought to the consequences which are disastrous to the child's health. Thus it is that a concoction of laudanum, or some drug equally potent, is added to the simple menu with a cruel regularity. If the sacrifice of children's lives to the convenience of their parents' requirements were the subject of a public inquiry, and the details were duly published, a thrill of horror would vibrate through the land at a system of slow murder which remains not unknown but unpunished. For the mother, ignorance and necessity somewhat mitigate the sentence. For the vendors, there can be no tangible excuse advanced.

It is almost a thing impossible in one's daily peregrinations to escape the pamphlet fiend. You have a little book thrust into your

hands containing sickening details of nervous exhaustion and loss of vital energy at every coign of vantage in highways and byeways. If I had my own way, I would give "in charge" every person found distributing such pernicious literature, and as to their masters—well, a good horse-whip and a ducking pond might prove a preliminary to penal servitude. The wording of these scandalous traps is such as to arouse suspicion of a real or imaginary complaint, and in the hands of the young, foolish, and credulous, they create a real danger, serve to fill the quack's pocket with a golden lining, and confirm the passive patient into a chronic invalid.

Unfortunately, the majority of those who are out of sorts and become persuaded to experiment upon themselves with sundry preparations from the pharmacopœia of the charlatan, directly they are restored to health vow eternal allegiance to the pills or potions, as the case may be, which they have swallowed, proclaim their cure, and thus influence those who may at first sight treat the nostrums for what they are worth. Nature, which in nine cases out of ten would re-assert herself, is calmly ignored; all the glory and power are ascribed to the wonderful medicine, and the consequence is that it sells like wildfire. A premium is put upon universal remedies as a good commercial speculation, and the market is flooded with bogus prescriptions as ventures, from which may be reaped a goodly return in the way of £ s. d.

DIOGENES.

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# HOSPITAL CLOTHING, BEDDING, AND WARDS.

By GUSTAV JAEGER, M.D., Stuttgart.

THE point of most consequence in hospital clothing is not the clothing of the nurses, but the clothing and bedding of the patients, and the nature of the furniture and walls of the room. If the former be all of pure wool, and the furniture be either of iron, or so painted or varnished as to be wholesome; further, if the walls are treated in the manner which I will subsequently explain, two eminent advantages will be achieved:—

1. Patients will sooner rid themselves of the poison of their disease, and will therefore sooner be cured, for the same holds good of disease-poisons as of the

attenuated self-poison of healthy people. The power of attraction which plain wood and dead plant-fibre possess for evil odours prevents the latter's escape according to the laws of diffusion, and defeats in great part, if not altogether, endeavours to ventilate.

2. These measures minimise the chief of the two conditions necessary to infection, namely, the tendency to disease, a consideration which is especially important, because the great facility with which disease-germs are conveyed renders the most careful rules insufficient to prevent their transport.

As regards the clothing of nurses: in order that it may not collect the human poisons which are generated in sick-rooms and that the nurses themselves may be proof against epidemics, they should be clothed in wool throughout. This clothing should be protected (but only when they are actually nursing), by a cotton or linen cover, which should be washed daily.

Lastly, as to the walls of rooms. Many authorities on hygiene attach much value to the so-called porous ventilation, *i.e.*, to the fact that ordinary walls are pervious to the air, and thus insure a certain amount of ventilation. Covering the walls of a room with oil-paint is therefore condemned as shutting off this means of ventilation. I formerly held the same view, and caused my walls to be distempered, but since I have tried the other plan I have altered my opinion. I first caused my staircase, in which there was always an unpleasant smell, to be treated with oil-paint, with the result of greatly improving the freshness of the air, and I have subsequently painted other portions of the interior of my house with a similarly satisfactory effect. The explanation is very simple: the relations of plaster, lime, and stone to odours are similar to those of plain wood; through their surface-attraction they hinder the egress of malodorous exhalations from living beings. When the walls are unpainted, and especially when they are papered, the air cannot be pure, and the ventilation which takes place through the by no means fragrant materials of the walls is nothing to be grateful for. Oil paint destroys the evil influence, and offensive odours pass away into the outer air much more freely than before, even without any special ventilating contrivance.

Let the experiment be tried, in some one room of a hospital, of coating walls, flooring, and all woodwork and wooden furniture thoroughly with oil paint; not merely the parts which are seen, but inside, outside and all round; let the bedding and clothing of the patients be wholly of pure wool, and then estimate the result by the evidence of the nose! In such a normal hospital ward the atmosphere will, under equal conditions of ventilation and cleanliness, be distinctly better than that in ordinary wards.

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SPILLING THE SALT.—It is a curious fact, not generally known, that the popular superstition concerning the unluckiness of upsetting the salt at table originated with Leonardo da Vinci's picture of the Last Supper, in which Judas Iscariot is represented as overturning the salt.

# IS THE SALVATION ARMY A PUBLIC NUISANCE?

NOTWITHSTANDING the fact that some persons in authority have, taking a theoretical view of the subject, declared that the Salvation Army has a right to march where and whither it pleaseth—in other words, to hinder the traffic of our streets and to disturb the quiet of any locality—I venture to propound this question after considerable personal experience. From time to time reports have reached us from an adjacent place, Clapton, of the injury done there—empty houses, depreciation of property, and diminution of trade, consequent upon hundreds of respectable families having been driven out of the place by the noise and other annoyances caused by the Salvation Army and its followers, but it is only recently that residents at Walthamstow have been enabled to judge for themselves what the army is really like. Shortly before the August Bank Holiday, the army commenced a "fourteen days' campaign" in our unfortunate parish, which fortnight was extended into more than a month. According to the notions of their leaders an army is nothing unless it is aggressive, and one of the first steps was to erect a huge tent open to view on a small piece of ground situated in the High Street, within a few yards of the thoroughfare, and close to a number of private houses. Here, once or more often on each week-day, and four times on Sundays, several hundred persons congregated in the marquee, and conducted their services, consisting mainly of loud harangues and ejaculations, tambourine playing, hand clapping and singing various ditties, interladed with sacred allusions, to the commonest music-hall airs. The surrounding spaces, including the footpaths and roadway, were blocked with idle loungers, many of them of the "Larrikin" type. Whatever might have been the intended effect upon those inside the tent, as regards outside audience the immediate result of the strange medley of buffoonery and blasphemy was to briskly stimulate the last-named to enlarge considerably on both themes. The monotony of the long series of gatherings was diversified by the introduction of special elements of presumed interest. At one meeting, for instance, a certain "Herr Mordecai Rotholtz, a converted Jew, lately escaped from Egypt," was the leading feature, and created much amusement by his extraordinary antics when the army made the customary parades through the town previous to the services. I have been unable to ascertain why H. M. R. should have had any difficulty in getting away from Egypt, unless he irritated the mild, long-suffering "fellahs" to such an extent that flight was the only chance open to H. M. R. of leaving with a whole skin; but perhaps some one engaged in drawing up the programme got rather mixed as to early Biblical history. On another occasion some converted infidels made the more susceptible amongst their auditors decidedly uncomfortable by somewhat boastful stories of their past life. Like Joe in "Pickwick," they wanted to make their hearers' flesh creep, and they did it too. This vainglorous recapitulation of so

much wrong-doing, reminds me of the anecdote told of a Salvationist convert who was loudly bragging at a provincial meeting of the number of robberies he had had a hand in before joining the army. "Why," exclaimed he, "I put up half a dozen burglaries in as many months in this very county." "You couldn't oblige me with the address of one of them, could you?" quietly remarked a plain-clothes constable who was standiag near, and hoped thus to acquire a little useful knowledge. But the dove had not wholly put aside the cunning of the serpent, and the astute member of the force had to go without the "information received" which figures so often in police-court reports. So far I have spoken chiefly of weekdays; but it was especially on Sunday, a day on which all people look for some rest and quiet, that the annoyance to householders in the neighbourhood was greatest. Soon after 6 in the morning the first meeting was held, another at 11, a third at 3 p.m. and a fourth at 7, each lasting about two hours, so that what with eight hours' devotional work in the tent (if devotional it may be styled to play a tambourine, to sing a semi-comic song, or to clap one's hands as vigorously as a 'bus driver on a frosty morning) and the long preliminary marches of the army through the principal streets, enlivened with flash tunes, vocal and instrumental, it is not difficult to estimate the amount of Sabbath rest enjoyed by residents in the vicinity of the encampment. I may observe here, parenthetically, that the hubbub was so great that during the whole of Sundays, and at certain hours of weekdays, we could not bear a single window open on the side of the house nearest to the camp—no small discomfort on a sultry August day. I know that my neighbours all suffered greatly from the almost constant annoyance. Perhaps I have more reason to answer the question at the head of this article in the affirmative than even they have, for, being actively engaged in professional work in London during the daytime, I have only the evenings left for various literary pursuits. My labours in this respect were much interfered with, and I was compelled to decline a special literary commission which had to be executed within a certain time. Besides all these grounds of complaint the health of at least one member of my family was affected by the incessant tumult. Really it seems to me that a new Act of Parliament, with clauses particularly directed against the Salvation Army, entitling householders and others to "compensation for disturbance," ought to be passed in the next session.

M. D.

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THE MENU.—We learn from Germany that the Emperor has decided that French shall no longer be used in describing the dishes constituting the Imperial bill of fare; but that German shall be the language used. A similar modification might be adopted with advantage here, having regard to the extraordinary blunders often perpetrated in endeavours to describe a good English dish in bad French.

# HYGIENE,

## IN ITS RELATIONS TO PRACTICAL MEDICINE.

By Professor JARVIS S. WRIGHT, M.D.*

HYGIENE has to do with the means of preserving health, and Practical Medicine bears upon the cure of diseases. The latter is healing ; the former is preventive. If an ounce of prevention is worth a pound of cure, as the saying goes, then Hygiene is of more value than Practical Medicine. Yet, do not suppose that I underrate Practical Medicine, for though a man will not allow you to drain his premises, ventilate his house, or arrange his dietary, when he is well, it does not follow that you should not know what to do for him when he falls ill.

First of all, then, let us have the clearest possible perception of the nature of disease ; for such perception, and the knowledge that it brings, will throw a flood of light on the subject of Hygiene. And let us rise to this by familiar and well-understood forms of comparison.

How, for example, did the dram-drinker get *Steastosis* or *Sclerosis* of the liver? That is, how did his liver become in the former case a mass of fat, or how—on the other hand—did it become hard and knobby, like a mass of nutmegs? Alcohol, in some form or other, was the cause, and "gin-drinker's liver" was the result,—a definitive disease, one that you will often be called upon to treat, and one that you will sometimes have the opportunity to prevent. Suppose you were to give a man one drop of croton-oil three times a day, it would not be very long before he would fall into a state of collapse, bearing a very marked resemblance to the collapse of cholera. Yet the latter is called disease, while the former is termed poisoning. Let the heat-ray fall upon the capillaries, and they dilate ; let the light-ray fall upon the eye, and the pupil contracts. So opium congests the capillaries, and the pupil contracts. The burning sun of summer may strike one down in the midst of vigorous existence ; so may the electric fire from the rain-cloud ; so opium, and so, too, may the malignant emanations from a swamp. But malignant malarial fever is called a disease ; and can we not apply the term disease to sun-stroke, to lightning-stroke, and to opium poisoning?

*An abridgment of a Lecture delivered at Long Island Hospital College, U.S.A,

One septic poison will cause an eruptive fever, another will cause typhus fever, and another will cause typhoid fever. A fever is a disease; but we admit it to be due to "poisoning" by saying that a septic poison is the potential cause.

Disease is, therefore, a departure from the normal structure, and the normal function, caused by some disturbing force. I say both function and structure, because, in our present state of knowledge, we divide disease into organic and functional. Of course, when the structure has undergone change, there is a change of function; and I am perfectly willing to admit with Trousseau, that every functional disease depends on change of structure. Hence, when our methods of observation have become perfect, it will, no doubt, be found that all disease is organic. Force acts on matter under organization, and disturbs its organic relations; as the result we get disease.

Let me now call attention to some of the causes that operate to disturb the health of individuals—to such disturbing forces and influences as fall more properly within the province of Hygiene, and which are more or less preventable.

One of the most noticeable health-breaking factors is bad ventilation. The savage constructs poles into a hut, in the form of a truncated cone. He leaves an opening at one side for himself and the fresh air to enter. He leaves another opening at the top for the exit of impure air and the smoke of his fire. Our primitive people built chimneys with open fireplaces in their log houses. How simple, how perfect, for warming and ventilation! But the evolved savage —the citizen—builds his house with four square walls, and leaves a door for the occupant to go in and out. There are windows, to be sure, but they are generally closed, and the curtains and the blinds bar the entrance of fresh air and sunlight.

The subject of clothing stands by the side of ventilation. The clothes we wear constitute a kind of peripatetic house. The birds of the air and the beasts of the field have an annual or perennial dress. Man puts his dress off and on, evening and morning. Why the necessity of clothing animals and men? To protect, to warm, and to ventilate. What a net-work is made up of the pores covering the whole body! Close them absolutely by disease or with varnish, and death will supervene. You might as well stop digestion as stop

cutaneous transpiration. Textile fabrics of material from Nature's loom, are the best for protection, for warming, and for ventilation. By such means we put a kind of lung on the body, over the pores. The textural interspaces contain a "residual air," which is kept nearly at the temperature of the body, and which slowly and evenly warms the constant afflux of cool, fresh air, while the deleterious vapours uniformly go outwards by diffusion. That is, therefore, the best clothing which best supplements the functions of the skin. I have a word to say with regard to the clothing of the young. And why do I say it? In order that you may be forewarned, and equipped for a crusade against a stronghold of ignorance. I make a plea for the innocent and the helpless who—such of them as survive—will, some day, be our men and women. Who clothe the young? It is done under maternal directions. How is it done? The legs are left bare, the arms are naked, the neck and upper part of the chest are exposed, scanty clothing is put on the body, and that is all. Why so? Would you believe it? It is done in this way to harden the little ones, to give them good constitutions! How cruel, how sad, how lamentable may be the result! The mother means this for good. But let her dress herself as she does her infant; let her give the matter a fair trial; the trial will not last long. Ought we to dissipate on the winter air the warmth that Providence has furnished for developing the delicate child into the full vigour of manhood or womanhood?

*(To be continued.)*

## NOTES AND NEWS.

TAX ON EGGS.—The Finance Minister of Russia has in contemplation to impose a tax on the eggs of all kinds of poultry, from which an annual revenue of 5,000,000 roubles is calculated—upwards of £800,000. This tax on food is startling, at first sight, to an Englishman; but we pay our tax in purchasing enormous quantities of eggs from abroad, the number imported last year reaching the large figure of 1,035,000,000. This is without taking into account the imports from Ireland, where the number of poultry kept is only two millions less than that in the whole of Great Britain. "Fruit," says one friend of the farmer, when asked to suggest a remedy for agricultural depression; "Jam," says another, while a third urges the more extensive cultivation of vegetables. We would add "Eggs and Poultry" to this list.

THE UNLAWFUL EMPLOYMENT OF YOUNG CHILDREN.—At Dewsbury, Thomas Turner & Co., glass manufacturers, were recently fined £49 for illegally employing children at their works.

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RAILWAY TRAVELLING is cheaper in India than in any other part of the world, the average rate for the lowest class being two *pies* (one farthing) per mile. If such low fares existed here, what a boon it would be to the hundreds of thousands of poor residents in our populous cities and towns, who never get away from their sordid and unhealthy surroundings!

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BUTTER.—Denmark has become the greatest dairy farming country in Europe, and the export of Danish butter last year reached forty-five millions of pounds. According to recent agricultural statistics the number of cows on Danish soil is nearly a million, or little less than one cow to every two heads of the population. The great success of the Danes in the matter of dairy farming is in no small degree due to the co-operative system largely adopted amongst the persons who follow that industry, and there are at present more than two hundred co-operative dairies in full work. Great care is bestowed upon the technical education of those employed; and many of these have gone through the half-year's course of training at Ladalund, where in addition to writing, book-keeping, and mechanics, they are also taught elementary chemistry, (including the testing of milk, &c.,) and the anatomy of domestic animals.

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MILK.—An excellent system of payment according to quality is in operation in Denmark, namely, an arrangement by which the price of milk is regulated by the proportion of cream contained in it. If this system were practised in England, the "cow with the iron tail," *alias* the pump, would be less resorted to by milk vendors than is now the case.

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THE HOURS OF SLEEP.—An old verse says:—

"Nature requires five,
And labour seven,
Laziness nine,
And wickedness eleven."

## EDITORIAL AND PUBLISHERS' NOTICES.

"DIET AND HYGIENE" for October 16th will contain, in addition to other Articles, British Health Resorts, No. 12, Hastings and St. Leonards; Cheap and Wholesome Foods, No. 2, Fungi; The Manufacture of Aërated Waters.

CHANGE OF PUBLISHING ARRANGEMENTS.—"DIET AND HYGIENE" will in future be published FORTNIGHTLY, namely, on the 1st and 16th of each month, at the reduced price of 3d. Nos. I to VIII., still on sale, at 6d. each; No. IX., 3d

# Diet and Hygiene:

A FORTNIGHTLY MAGAZINE

OF

## FOOD, DIETETICS, & HEALTH.

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-2 NOV 88

### SPECIAL NOTICE.

ANALYTICAL DEPARTMENT.—We have much pleasure in announcing that, in accordance with the frequently expressed wishes of many of our subscribers, an Analytical Department has been established in connection with this periodical, and that Dr. Gilbert D. Sutherland, M.A., Ph.D., will undertake its conduct. Any communications concerning it should be addressed to our Offices, 6, Wells Street, Oxford Street, W., and be marked "Analytical."

SANITARY SURVEY DEPARTMENT.—Another new department of great utility has also been organised, and sanitary surveys of private houses and other buildings will be carried out under the personal supervision of an ex-Medical Officer of Health, holding the Sanitary Science diploma of the University of Cambridge. Terms, which are very moderate, and are still further reduced to our subscribers, can be ascertained upon application by letter, marked "Sanitary Survey."

## FOOD FOR THE DESTITUTE POOR.

NOVEMBER chills and fogs compel even the least thinking person to admit that the amount of the destitution in all populous places is absolutely appalling; while they stimulate public authorities and

private philanthropists to do all in their power to cope with so gigantic an evil.

There are many people who, unconscious of the selfish origin of their argument, assert that any form of charity tends to lower the independent spirit, and to increase the thriftlessness, of those who are its recipients; but we trust that they will allow that to feed the hungry in a properly systematised manner is, at any rate, not so open to objection as most other methods of assisting the poor and needy. The piercing cold of winter is sufficiently trying to the well-clad and equally well-fed citizen; what must it be then to the poor, shivering creatures whose rags barely cover up their miserable benumbed and starved bodies?

Yet, when it is considered how cheaply and how efficiently the poor may be fed, in large numbers, it is strange that more efforts are not made in this direction. In London, various societies are specially devoted to the distribution of food and soup to the necessitous poor during the winter months, and we propose in this article, to give some idea of their operations.

One of the most important of these institutions is the Model Soup Kitchen, in the Euston Road, not far from the Portland Road Station. "It was established in 1846, for the following laudable objects:—To assist in preserving the health of the labouring classes during the winter season, by supplying suitable and nourishing food at cost price, and also to benefit poor persons by enabling the kindly disposed to purchase tickets for distribution among such as are known to be deserving, but are unfortunately involved in temporary distress by sickness or the scarcity of employment." The tickets are sold in books at the rate of twelve for eighteenpence; each entitling the holder to a pint of soup and half a penny loaf, or to one pint of rice milk and bread. How highly this simple, but nutritive, repast is appreciated may be judged from the fact that in one winter alone nearly 18,000 gallons of soup were disposed of, and that poor people's pence to the extent of 40,000, helped to defray the cost of the food supplied. In four hours of the mid-day, viz., between 11 a.m. and 3 p.m., and, at times, even in a less space than that, 1,000 hungry men, women, and children, have been known to enter the portals of the Model Soup Kitchen, and to have a warm, sustaining meal. The

soup is prepared in three large coppers, holding, respectively, twenty, thirty, and forty gallons. The quantities of different ingredients employed in the preparation of the soup are as follows, in every twenty gallons :—Flour, 6 lbs.; bacon (at 6d. per lb.) 4 lbs.; rice, 2 lbs.; dried peas, 22 lbs.; onions, 4 lbs.; rice, 2 lbs.; carrots and turnips, one large bunch of each ; salt and pepper to flavour. Another recipe, that for beef soup, is, for twenty gallons :—Half of an ox-head at 5s., stewed to a jelly; barley, 9 lbs.; flour 7 lbs.; onions, 4 lbs.; rice, 6 lbs.; carrots and turnips, as in the other recipe, pepper and salt. It is estimated that the materials are purchased at the rate of three farthings per pint of soup ; the rent of the premises, wages of five persons, cooking and other necessary expenses being equivalent to the other three farthings of the 1½d. charged for each ticket.

Another large soup kitchen, also, rather singularly, established in 1846 in Leicester Square, and now at Ham Yard, Great Windmill Street, does a large amount of good. In one winter it furnished to the necessitous 50,000 dinners at 1d. each, while a great number of free meals—more than 180,000—were also given out. Here a different system of management to that adopted at the previously-described kitchen is followed, being based rather on family than on individual needs. Each subscriber receives in return for his or her subscription a number of forms of recommendation for relief, in which certain particulars as to applicants' addresses, occupations, how many in family, &c., have to be filled up. These forms are registered at the institution, and each applicant then receives a card entitling to two quarts of soup and two pounds of bread three times a week. The soup at Ham Yard contains in every hundred gallons 100 lbs. of stock beef cut into small pieces, and stewed with onions in a separate copper, afterwards filled up with water, and boiled for three or four hours. The stock costs from 4d. to 5d. per lb., being principally legs and shins of beef. While the stock is in course of preparation two bushels of Egyptian lentils and half a bushel of onions, with one pail of rice, celery to flavour, salt, and pepper, are put into a second copper. Within about an hour and a half the lentils are dissolved.

Next, the contents of the two coppers are admixed in a third, with water, the soup being thickened with a peck and a half of flour. If lentils cannot be readily obtained, pea flour or rice can be substituted.

Lentils are exceedingly nutritious; containing, as they do, 26 per cent. of flesh-forming constituents and 58 per cent. of heat-givers.

We have described at some length the processes of cooking used at each of these establishments, because we believe that similar ones, on a smaller scale of operations, would be started in different parts, if local philanthropists were acquainted with the most economical means of administration. Of the different modes of preparation those practised at the Euston Road Kitchen are easier to carry out. In each instance, however, an admirable soup is made; though having regard to the valuable properties of lentils, we would suggest their partial substitution for a portion of the peas or of the barley, at the Model Soup Kitchen.

No one is more opposed to indiscriminate alms-giving than ourselves, but there is a wide distinction to be drawn between rendering much-needed assistance in kind to the deserving poor, and giving money to beggars who will promptly dispose of it in purchasing drink or in some other worthless manner.

M.P.

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## SANITARY HINTS TO HOUSEHOLDERS.

Everybody theoretically values health; most people practically disregard it. Hence the obstacle to popularising sanitary science: because people do not bring it fairly into their daily thoughts. Yet the present greatly improved state of curative medicine is due, in a very considerable degree, to sanitary science: to the more careful observation of the natural action of natural forces, both in the living body and externally to it. Much has also been effected in the application of the principles and rules of sanitary science to the improvement of towns; but much remains to be done. With these preliminary remarks I will proceed to make some observations intended to be useful to householders.

*The Sources of Bad Smells in Houses.*—Most people are content with their habitations until they perceive a bad smell; then their trouble begins. Poor people, I have repeatedly observed, generally attribute a bad odour to some defect in their own houses, but rich

people often cast the blame on their neighbours' houses. This arises from the occasional difficulty in detecting the source of the evil, and from the repugnance which a rich man feels to admit that after the pains he may have taken to improve his drainage and ventilation, he has spent his money in vain. The first step towards the correction of a bad smell is to find out the cause of it, which is not always an easy matter. It may proceed from a sinkpipe, a watercloset, a waterpipe, damp walls, the sodden soil of the basement, or a crack in a gaspipe.

*Traps.*—Many people are quite satisfied if they have trapped their drains, and it is a common answer to a complaint as to an unpleasant odour to say that "the drains are all well trapped." This is a delusion. Traps depend for their efficiency upon the water they hold, and if this is allowed to evaporate in warm weather there is practically no trap at all ; or if the water contained in the trap be fouled by the absorption of sewer gas the trap becomes a means of diffusing poison ; in fact, some traps seem to be designed for the purpose of accumulating dirt and noxious gases. The common " dip-stone trap " is one of these. All traps should be freely and frequently flushed to prevent their becoming offensive, and it should be a maxim with householders that a trap will not keep itself clean.

*Forces Causing the Spread of Sewer Gas.*—Mephitic gases pass from drains into a house through three principal causes, namely : pressure, temperature, and diffusion. The pressure of sewer gas is but small, and water traps are constructed upon the assumption of this slight pressure. A difference of temperature between a house and a drain is a more frequent cause than pressure, and the sudden discharge into a drain of any heated fluid will lead to a rise of the sewer gases. Gases also diffuse themselves in accordance with a well known chemical law.

*Stench Pipes.*—In order to carry off the foul gases generated in a sewer, a stench pipe is often erected against a house, the pipe running from the drain up to a height of several feet above the roof of the house, and the drain being trapped on the side next to the house. The reason for this is that it is thought that the pressure would be sufficient to force the gas up, say sixty feet of piping, but this is evidently an erroneous opinion. As already stated, the

pressure of sewer gas is exceedingly small, and no adequate force exists, while, as to temperature, that would vary so much that no reliance could be placed upon it. In cold weather the draught would be downwards as in an unused chimney, and the sewer gases would be condensed in the pipe, and at all times, even the most favourable to the action of the pipes, the mixture of the gases with the air would occur so low down the pipe that very little noxious gas could escape. Very little advantage, therefore, can be expected from these stench pipes. Sewer gas could not ascend the shafts in the majority of days of the year, and even if it did on days of exceptional temperature, the pipes could not conduct away sufficient gas to ventilate the sewers. The true protection against sewer gas consists in frequent flushing with an abundance of water, free dilution of the gases with atmospheric air, and numerous ventilators placed at the crown of the sewers.

*Waste Waterpipes.*—Formerly waste waterpipes were connected with the drains to obviate the nuisance of accumulations of water upon the surface of the ground, but now it is the practice to have them disconnected. It is expedient that waste waterpipes, and sinkpipes should be trapped at both top and bottom. The lower trap should be a valve trap opening only in the direction towards the drain, and closing again by its own weight, on the principal of the "block trap" in use at the mouths of drains.

*Neglect of Traps and Dustbins, Dampness of Soil, &c.*—A very common cause of "bad smells" in houses is the carelessness of servants. In order to more easily get rid of refuse matters they remove the bell trap from the sinkpipe, and an offensive effluvium is immediately perceptible throughout the house, or they throw dirty water into wastepipes and omit to flush them. Dustbins are allowed to remain uncovered, so that their contents become wet and sodden, and give off disagreeable odours; or vegetable matter is permitted to lie and rot in them in moist, warm weather. Dark cellars are often made the recipients of garbage and rubbish of all kinds not otherwise easy to dispose of, and as cellars are commonly damp, a fusty, fetid smell is the inevitable result. There are other causes of offensive odours, the most enduring and persistently annoying of which lie deep in the structure of the house. The most frequent of

these is the soakage of the foundation with sewage. Many of the old and, in other respects, best houses in the metropolis, were built on the bare clay, and were provided with brick drains and cesspools. Wherever this arrangement of drains and cesspools has existed, it will often be found that the bricks have been loosened at the base of the drain and have fallen in, and that the cesspools have overflowed; further, that rats have bored holes in every direction, thus increasing the mischief. The consequence of all this has been that the surrounding soil has become saturated with sewage. When this could no longer be borne, it has often happened that a jobbing bricklayer has been called in to lay down new pipe drainage, and the following is something like a description of the way in which he has set about it :—He has carried his new six-inch pipes along the course of the old drain on the already black, fetid soil as far as the area, where he has fixed a dip-stone trap ; besides that he has done nothing but allowed the old brick drain to remain in connection with the sewer. He has not even, perhaps, lowered his level in order to get a good fall ; and the nuisance has remained as bad as ever, owing to the workman's ignorance and bungling. Unfortunately such a case as this is not of an isolated character ; for it has been a common practice with many "scamping" or ignorant workmen. The old soil should have been cleared out, and the pipes laid in concrete, with a good incline to the sewer. While the earth in the basement is allowed to remain sewage-logged, there must be "bad smells" in the house. The only permanent remedy is to remove the soil and foundations, and replace with new, cover over with concrete, insert glazed bricks into the wall, and line with Portland cement.

*Water Supply.*—The water supply of London demands serious attention. So long as cisterns are used, they should be provided with charcoal filters to purify the water before it is consumed ; or, better still, one of Gitten's patent filters (the "Queen") should be fixed upon the pipe between the cistern and the tap from which the water has to be drawn for consumption. This is the only filter of its kind ; exceedingly simple, as most good sanitary contrivances are, and as any one might judge for himself upon taking the trouble to call to inspect it at the Hygienic Depôt, 6, Wells Street, Oxford Street. One important *desideratum*, with regard to water for house

purposes is a constant instead of an intermittent supply ;* although even in that case, the "Queen" filter would be valuable, in order to insure an absolutely pure water for drinking and cooking uses. The only reasons why a constant supply is not universal are to be found in the activity of water companies in looking after their own interests, the apathy of consumers in looking after theirs. There should be an ampler supply of water than is now given to the public. The sewers rarely contain more than a few inches of fluid ; and deposits are apt to accumulate in consequence of there not being an adequate flow. When foul gases rise from the sewers, the fault is often due to the thousands of private drains which are insufficiently flushed, especially where the drains are of considerable length or connected with houses peopled by many persons. Further, the water supply of London is defective, by reason of the very large proportion of it which is derived from the River Thames. The time will, doubtless, come, when the importance of this fact will be more fully recognised, and when, as a consequence, the Metropolitan supply will be obtained from the practically inexhaustible natural reservoirs situated beneath the chalk within 30 or 40 miles of London.

In conclusion, then, I would assert that four things are wanting, as regards our water supply—a larger quantity, greater purity, better appliances, and unity of administration. The separation of the water supply from the public administration of the drainage system, and leaving the former in private hands is a mischievous incongruity, which has arisen out of the piece-by-piece legislation concerning sanitary affairs. The water supply should be everywhere, as it now is in some of our large towns, in the hands of the public authorities.

M.D.

*For a complete article on this subject, we would refer the readers of "DIET AND HYGIENE" to that entitled "Constant *versus* Intermittent Water Supply," published in the May number, page 205.

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THE POPULATION OF ENGLAND in 1377, five hundred years ago, was a little over two millions, according to an enumeration which was made on account of the poll-tax. The number of towns containing above 3,000 inhabitants was only eighteen. London headed the list with 35,000 only, and the others were York, 11,000 ; Bristol, 9,000 ; Plymouth, 7,000 ; Coventry, 7,000 ; Norwich, 6,000 ; Lincoln, 5,000 ; Sarum (now Salisbury) 5,000 ; Lynn, 5,000 ; Colchester, 4.500 ; Canterbury, 4,000 ; Beverley, 4,000 ; Newcastle-on-Tyne, 4,000 ; Oxford, 3,500 ; Bury St. Edmund's, 3,500 ; and Gloucester, Leicester, and Salisbury, each with rather more than 3,000.

# THE MANUFACTURE OF AERATED WATERS.

By Thomas T. P. Bruce Warren.

(*Concluded from page* 379.)

In the previous article on this subject, at page 379, I referred briefly to the claims which Aerated Waters have to be regarded as articles of consumption in an ordinary dietary.

A word of caution appears necessary, and I must say that I am surprised at the silence of the medical profession on certain *aerated nostrums* which are extensively consumed. So long as a manufacturer of these waters confines himself to the strict *bona fides* of his business, no one has a right to murmur, but when he steps beyond his province and issues under specially captivating names, chemicals which are by no means inert, I maintain that his wares are sent out with distinctly false claims. No manufacturer will attempt to justify the indiscriminate consumption of phosphoric acid, which is now so rife in the form of phosphates, hypophosphites, etc. These compounds are manufactured as specialities by many chemists solely for mineral water makers. I am happy to say that the leading mineral water manufacturers with whom I am acquainted, studiously avoid the manufacture of these objectionable beverages. It would be extremely interesting to know how many manufacturers of Aerated Waters are aware of the pernicious effects arising from a continued use of acid phosphates and their congeners. A word of warning should be given with unmistakable emphasis against the continued use of these beverages, unless approved of by a medical man.

Another source of complaint against a certain class of manufacturers arises from the use of those abominations which are called "fruit essences," and which, in fact, consist mainly of "ethers" of very doubtful value as articles of diet. A class of drinks largely met with now, and even recommended as specially suitable for "teetotalers and temperance parties," contains, in many cases, a "smack" of "œnanthic ether," or "brandy oil," as it is sometimes called. Is a consumer prejudiced when swallowing these liquid

conundrums? We have restrictions on the publican, but why it is that a mineral water manufacturer can sell poisonous or deleterious drugs, passes my comprehension.

To return to the more congenial part of my task is more agreeable. Seltzer water, lemonade, soda water, and plain aerated water, may claim a place in any well-arranged catalogue of beverages. Sherry, claret, brandy, a few well-made fruit syrups, and essence of ginger, may supplement the list according to the idiosycrasies of the individual.

It is not my intention to deal with the technicalities of this industry, beyond those relating strictly to their wholesome character. A good natural water-supply is of the very first importance. Clean slate tanks for stowage, careful cleansing and rinsing of bottles, will demand watchful supervision; and it is equally important to have a perfectly clean and well-ventilated workshop, as far from stables, straw-sheds, open drains, etc., as possible; while solutions, materials for carbonic acid gas making, and the numerous odds and ends employed in making aerated waters, cannot have too much attention.

There is a notion in existence among some people, that we have no business to pry too closely into matters relating to our food supply, and the reflection "that to-morrow we die," is, so far, a consolation to these persons. An indifference to what we eat or drink, so long as our appetites are satisfied, is, to my mind a piece of criminal selfishness. Aerated Waters, properly made, rank in the finest class of beverages for general consumption, and hence, no well-arranged table is considered complete without a supply of seltzer or aerated water, and, if served up in syphons, form a graceful decoration to the table. The dietetic bearing of these waters scarcely belongs to a paper dealing with their manufacture, but their value as aids to digestion cannot be overlooked.

The manufacture of Aerated Waters in the syphon form, has given a marked impetus to their consumption among the upper classes. Flavoured waters, such as lemonade, are, by preference, refilled into the same syphons, for these vessels do not offer the same facilities for "washing out" as the ordinary bottle. One considerable advantage belonging to syphons, is that they cannot be used for

any other liquid in an ordinary way. Similarly, the round bottom bottles, such as the usual soda water bottle, was a very awkward vessel to use as a temporary candlestick ; flat-bottomed bottles have often been used for such a purpose, but complaints on this score have entirely disappeared. This is due, perhaps, to the careful examination of the empties before being washed.

I have often thought what a multitude of sins in the way of dirt and like impurities is concealed by a dark or black bottle. It offers, at any rate, a temptation which is not pleasant to think about. Claret bottles are open to the same objection. This forces upon our attention a subject which is of paramount importance, but we can hardly hope for a reform in bottles where so much depends on the use of cheap materials. Still it is a matter on which some attention should be directed.

The use of distilled water is no doubt a great advance in the right direction, as regards this manufacture, yet we must not look upon it as a necessity, unless the natural water supply is defective. Water previously boiled, if cooled and filtered, will be practically equal to distilled water. Owing to the expulsion of free cabonic acid, earthy and metallic carbonates are removed. But even this is a refinement which is not requisite if the natural supply is of good average quality. As a rule, whatever we do in the way of removing an ingredient, whether saline or gaseous, from a water, we can hardly help creating a fresh medium of contamination, and, in most cases, more serious than the one we are removing.

If a natural water-supply is bad as regards organic impurity, nothing will render it safe for use in making Aerated Waters. It is best to avoid it *in toto*, and if a suitable supply cannot be obtained by sinking a well, it is far better to remove the manufactory to some more favorable locality.

We may generally consider that if an ordinary water-supply is normally good, it may be used for Aerated Waters without fear, but defective pipes have been known to be a source of contamination. Hence, every factory drawing from such supply, should have a standpipe near the entrance of the factory, so as to make sure, if the water is impure, whether it is vitiated on the premises. If so, the necessary measures to amend this condition can be taken without

interfering with the factory operations. Of course, if the water is vitiated on the other side of the standpipe, and we are not provided with adequate stowage, the only prudent thing to be done is to wait until the pipes are repaired. On this account it is best to have a good reserved stock of manufactured waters to fall back on.

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## SHORT HEALTH PAPERS.

By Dr. Alfred J. H. Crespi.

No. I.

The science of health has two great objects: one—and the more important—to teach man to keep himself, mind, and body, in vigour, so that he should be in the best condition for doing the work of life; the other—easier and less important—to remove the causes producing and aggravating sudden and fatal outbreaks of infectious diseases. The former includes many matters not generally supposed to come within the province of the sanitarian. It comprises training the bodily powers in childhood, and in more advanced life the formation of habits of industry and temperance, the avoidance of defective hygienic conditions, and includes many subjects to which the term education is generally applied. But, whether education is part of sanitary science or not, there is no question that it must be based on a knowledge of it, for, from the intimate union of mind and body, no system of mental training is scientific which does not take into account the development and preservation of the physical powers. In its broadest application, sanitary science applied to purposes of education, made practically useful, in short, includes everything having as its object the preparation of man for the great work of life, the preservation of his powers in the highest efficiency, the enabling him, during a long life, to work easily and successfully so that he should not break down, mentally or physically, until he has borne the heat and burden of the day. Under the second head, the prevention of infectious diseases—if that, indeed be not part of the former, are comprised those measures, such as good drainage and an abundant supply of pure water, which diminish the danger of fevers and of all infectious and epidemic complaints.

Under the most perfect hygienic conditions, man will always be liable to many painful and fatal diseases, some due to unavoidable exposure to noxious gases or inclement weather, others to premature decay. Circumstances may occasionally arise compelling him to face the causes of disease, and when, as sometimes happens, duty urges him, the danger must be calmly and bravely met ; but this cannot often be the case, far more often the danger might be avoided. At most, sanitary science only hopes to avert those diseases which interfere with the work of life during that period when life should be a pleasure. The gradual and painless decay of the mental and physical powers must come at last, but it must not be dreaded as an evil if it comes after the heat and burden of a long day have been bravely borne. At present, death from decay of nature, in other words, old age, is very rare, and a busy doctor may not see two cases in a year.

No. II.

However weary the world may get of the subject of health, its importance must be insisted upon until generally admitted. It is sheer folly to expect a few bottles of medicine to produce lasting benefit on any constitution as long as the complaint for which they are taken depends on important changes of the vital organs. But these changes, caused originally by long continual exposure to unfavorable hygienic conditions, become at last irremediable, and no power on earth can undo what has been done. For example, it may be wearisome to be warned that rheumatism will some day punish neglect of the laws of health, but the day at last comes when unnecessary exposure to the causes of rheumatism brings on an attack. Of course the patient's friends fly for the doctor, and with zeal, sometimes untempered by discretion, the latter prescribes large quantities of various preparations of potash, and the patient finally recovers, at least he and his doctor give it this name ; but a change in his constitution has taken place, and even under the most favourable circumstances he is henceforth liable to another attack. A little exposure, which before his first attack would have been attended with no bad consequences, may bring on a relapse ; nay, a trifling change of weather may occasion severe pain in his joints, and the older he gets the worse he becomes. This, remember, is the

case when rheumatism terminates favorably. Suppose it terminates unfavorably: although the first attack does not kill outright, what follows? The action of the heart is impaired, and permanent disease set up. No medicines have any power to retard the progress of the fatal changes which then go on, slowly at first, but with ever-accelerating rapidity. At last, though perhaps not for years—years of suffering and weakness, mind—death comes. In the pathetic words of the sufferer and his friends, he has never been the same man since he had that first attack of rheumatism. Of course not, for a change has come over his body, though he knew it not, and that change goes on increasing till he finds rest in the grave. If poor, he hopes that the warm weather, the dry weather, or the cold weather may do him good. If rich, he goes full of hope to Bath, to Harrogate, or somewhere else, where he has been told that he is sure to be cured. Change does him good for a time, then slowly he sinks lower than before. Would not care in the first place have been better than anything that could be attempted after the victim had been seized by a tyrant who may relax, but never resigns, his terrible hold? Yet the poor people who smile at prevention as foolish, think no expense thrown away, the object of which is that impossibility—a complete cure.

No. III.

The really wise physician can follow with attentive eye every step a disease takes. But how seldom can he successfully interfere, how often rather are the resources of his uncertain art useless? Occasionally drugs are of service, but only when given to cut short some of the effects of exposure to the causes of disease. But for drugs to benefit it is a *sine quâ non* that those effects should be such that, left alone, they would wear themselves out. In other words, drugs accelerate recovery in cases in which the restorative hand of Nature would more slowly cure the sufferer. Medicine is practically powerless when the effects of disease would be, left to themselves, permanent. Medicine can do nothing when disease is slowly altering the textures of the body, and gives rise to pain and disorganization where normally should reign health and strength. Is surgery not more powerful, some will ask, who, sceptical of the powers of the physician, think that the surgeon can achieve much? No, it is not. Surgery is

successful when summoned to Nature's assistance and working as Nature works. Surgery may cure an aneurism, but only when that aneurism is in the best possible condition for undergoing a spontaneous cure. Surgery may remove, quickly and painlessly, a gangrenous limb, but, if the sufferer's strength lasted, Nature would cut off that limb. Surgery will take out dead pieces of bone ; she will open abscesses, or remove tumours, and her triumphs are brillant ; but only when she does what Nature tries to do, what Nature more slowly, more painfully, sometimes accomplishes. Scientific surgery and medicine help Nature ; they are her handmaidens, they enable her to triumph when she would fail, left alone. It may not seem much to do ; but, ten thousand failures warn them not to attempt what they cannot accomplish. They cannot force Nature, and therefore they can seldom arrest disease, or permanently relieve suffering.

It is not a question of large or small doses of drugs, not one of skill and knowledge on the part of the medical attendant. The large doses of the allopathist are not more worthless than the small ones of the homœpathist in nine cases out of ten. When there is most need of assistance the physician, who has learnt the mysteries of his art, can only lament that, while health was unimpaired, it was not preserved as the greatest of treasures—a treasure which, once lost, can seldom be restored. The impotency of medicine conveys a lesson to those who choose to learn it ; it is—Study to preserve that which, if sacrificed, may pass for ever beyond recall.

No. IV.

Few are aware how easily some of the blessings, which careful attention to and patient study of the laws of health confer, can be brought within the reach of all. Better days are coming. Before long some fruit will reward the untiring and disinterested labours of hundreds of medical and scientific men, who are earnestly at work trying to prevent what can seldom be cured. Were curative medicine a strong and sure defence it would be easier to prevent suffering than to call in the resources of the physician's art to restore health, which ought never to have been endangered. But since curative measures are uncertain, and often disappoint those who rely on them, it is ten times more important to fall back on the assistance of that noblest branch of medicine, which has boundless power for good. In the

splendid triumphs of preventive medicine is seen the promise of what the future will bring. The lessened mortality and the longer and healthier lives—the privilege of some classes at the present day—are proofs that those are not dreamers who permit themselves to hope that, in a couple of centuries, there will be a marked diminution in the amount of sickness, and that the duration of the working period of life will be materially lengthened. In that brighter future death will oftener be the result of a gradual decay of the bodily powers, and men and women will enjoy a more vigorous life and a more peaceful and happy old age. Do not these rewards justify attention to the wonderful science of health?

No. V.

Briefly to recapitulate: these short papers have not answered the end I had in writing them if they have not drawn the attention of the reader to the following important facts; that it is far easier to prevent than to cure; that curative medicine—understanding by that term medicine and surgery—is usually powerless for good, except in cases when Nature would have sufficed, if not to ensure recovery, at least to place the sufferer on the high road to recovery; that sanitary science, in its broadest and most scientific signification, deals with the training of the mind as well as of the body; or, in other words, that no system of education deserves the name, which does not concern itself with the body as well as the mind; that the prospects of sanitary science are brilliant; and, lastly, that some knowledge of the science is indispensable to every man who takes upon himself the charge of a family. It is not difficult to learn something of the structure of the body, its functions and its dependence on the mind; but that knowledge must be practical, not theoretical. In all cases in which this knowledge is reliable, and influences national manners and customs, the standard of health rises: as it rises, the average time during which men and women are able to exert themselves strenuously and happily extends. Let all who have the charge of children or workpeople, all whose opinions and example influence others, hasten on the advent of the time when, in a sense never yet true, man will live naturally, painlessly, and successfully.

# ARSENIC IN THE HOME.

By A. W. Stokes, F.C.S., F.I.C.,
*Public Analyst to Paddington, Bethnal Green, and St. Luke's.*

Some few months ago I examined for a large firm of household furnishers, as well as for numerous private individuals, a number of samples of the then fashionable "Imitation Indian Muslins" and cretonnes. More than 100 samples were examined, and 23 per cent. of these were found to contain arsenic in appreciable quantities. In all qualitative cases Marsh's test was used, and only such samples as gave within five minutes indications of arsenic were marked arsenical.

Several were quantitatively examined. The highest proportion of white arsenic found was two one-tenth of a grain per square yard.

The colours in which arsenic was principally present were the terra-cotta reds and the greenish browns.

There being some doubt whether these materials would give off arsenical vapours, I made the following experiments :—

Some pieces of the arsenical muslins and cretonnes, measuring altogether 300 square inches, were placed in a glass tube three and a half feet long and three-quarter inch diameter, and air was forced through the tube for six hours. The air passed among the folds of the material, then through a smaller tube, kept red hot, and finally bubbled through some nitrate of silver solution. At the end of the six hours there was not the least indication of any arsenic having been evolved. The tube was then kept at a temperature of about 100° F. (blood-heat) for six hours longer while air was passing through the tube ; again no arsenic was given off.

From this it would seem that under ordinary circumstances arsenic would not be evolved by such fabrics. Yet in two cases samples of these materials were brought to me by medical men, in which well-marked symptoms of arsenical poisoning were ascribed to their use. In one case some six or eight work-girls employed in making up some of this material were all taken ill with the same symptoms of arsenical poisoning. Of course, in such case the material, when pressed with hot irons, is heated far beyond blood-heat, and minute particles are detached and float in the air of the work-room. That the arsenic is held very loosely by the fabric was evidenced by dipping

some of the fabric in water; plenty of the arsenic was at once taken up by the water. It would seem at first as if this might be due to arsenic having been used as a preservative for the size or starch present as "stiffening;" but then these muslins have no stiffening.

Wishing to see whether other materials were subject to arsenical colouring, I examined thirty other articles in use at home, including plushes, velvets, carpets, mats, linings, silks, druggets, and fringes.

In only one sample, a little flax mat of green colour, was there any arsenic to be found. This mat, which weighed 9 ounces, contained 21 grains of white arsenic.

I found my infant playing, lately, with a small glazed cardboard box of a green colour that had once contained chocolate, and that had been obtained from one of the automatic supply boxes. After the manner of infants, he was occasionally sucking this. Out of curiosity I tested it, and found that the "surface paper," measuring five inches by one and three-quarters, contained one-tenth of a grain of white arsenic.

In all these cases the quantity of arsenic found is small, and it may be, under ordinary circumstances, quite harmless; but in all cases its presence is quite unnecessary. Other colouring materials could equally well be used in which there is no possibly noxious ingredient.

Of wall-papers submitted to me, 10 per cent. are found to contain arsenic. This is a high proportion, but then only suspected samples are sent for analysis. One of my rooms I found thus papered.*

Omitting articles in which its occurrence has been purely accidental, arsenic has been found of late years to be present in some samples of muslins, cretonnes, wall-papers, playing-cards, the glaze of some enamelled stew-pans, the paper of fancy boxes, and in some furs. These last are usually the furs prepared by amateurs.

So that we may picture an infant placed by an unfortunate concurrence of circumstances in a room covered with arsenical paper, having its cot draped with muslin or cretonne, fed on food prepared in a glazed saucepan, itself covered by a rug, and playing with

*Neither are those who avoid wall-paper altogether safe. A lady some two or three years ago had her rooms painted, and covenanted with a Sanitary Decorating Company that they should use on the walls paint containing neither lead nor arsenic. Pieces of the moulding she brought to me contained both lead and arsenic in the colour,

some fancy box of sweets or toys, all of these containing a minute but unnecessary amount of arsenic.

One has no wish to be an alarmist, or in any way to harass trade, and it must freely be acknowledged that cases of any ill results whatever being traced to the use of these articles are very rare. None the less, seeing how unnecessary they are, and how each year arsenic seems to be finding its way into new quarters, it seems advisable to stop its further progress. This can only be done by prohibiting by law, as in some other countries, the use of arsenic for producing colours. Neither the ultimate seller nor the purchaser can really protect himself, the trouble and the expense would be too great ; but by making the manufacturer answerable the evil might easily be remedied.

## DIETARY OF DIABETICS.

One great peculiarity about the dietary of patients suffering from Diabetes is that many apparently simple articles of food must be wholly tabooed, owing to their containing sugar or starch, the latter being capable of conversion into sugar when taken into the system, *e.g.*, bread, potatoes, and beer. Still the range of articles from which a diabetic patient may select is very considerable, as will be seen upon a perusal of the following diet table, taken from the last (7th) edition of Dr. Abbotts' work on Diabetes, for some time past out of print.

*Breakfast.*—Chop, steak, or eggs ; bacon, not highly salted ; bran or almond buscuits, or gluten bread ; (thin slices of ordinary bread, toasted on both sides, and browned throughout, admissible as an occasional change, in moderate cases) butter fresh ; coffee, cocoa (prepared from the fresh nibs only) or tea, in each instance without sugar, and with a very small quantity of cream. Note.—If the absence of sugar renders these beverages unpalatable, the addition of a little pure glycerine (Price's being the most reliable) will be found to make them taste sweet and more agreeable.

*Lunch.*—Chop, steak, or other meat ; butter, fresh, or cheese ; one of the substitutes for bread already mentioned ; claret, Burgundy, dry sherry, or weak brandy and water. Note.—By "weak" is meant two or three teaspoonfuls of brandy (pale, old) to a tumblerful of water.

*Dinner.*—Meat soups, made strong, and flavoured with dried herbs or onions

(carrots, turnips, and peas being rigorously excluded); these soups may be thickened by the addition of a little finely powdered bran ; fish, (not salted) poultry, or game ; roasted lamb, mutton, or beef; vegetables: cabbage, greens, Brussels sprouts, spinach, lettuce, water cress ; any of the bread substitutes ; boiled rice ; blanc mange made with cream, not with milk, and not sweetened with sugar. Drinks, as at luncheon. Dessert, any oily kind of nuts, such as walnuts, filberts, and hazelnuts.

*Tea or Supper.*—Not later than 7 p.m. Similar selection of articles to that directed for breakfast, meat not being requisite.

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## PHILANTHROPY AND TEN PER CENT.

But a short time has elapsed since a contemporary advocated "Philanthropy and Four per cent." The *modus operandi* was simplicity itself, and consisted in building houses for the accommodation of the East End Poor. The scheme is not without its fascination, and let us hope for the sake of the wretched creatures who are cabined and confined like sardines in dens devoid of every decency, lacking in the elementary provisions of sanitary appliances, and not fit to be the temporary resting place of dogs, and also for the satisfaction of benevolent benefactors dying to invest their capital in good securities, and score a mark for righteous deeds at one and the same time, that the hint thrown out by "The Largest Circulation," during the silly season, will be productive of beneficial results.

Under any conditions the erection of model dwellings is a venture of such gigantic proportions that it is entirely out of the range of numbers who may only have a hundred or two lying idle, or that they are disposed to speculate with, and unless a company with this project in view were floated, such a bagatelle would be totally inadequate to the occasion.

I have a suggestion for the benefit of those who care to participate, which not only returns a much greater percentage at an infinitely smaller risk, but provides the means of utilizing small sums and giving employment to respectable and honest people, who through no fault of their own are in a state of chronic impecuniosity. It is none other than the provision of suitable barrows and apparatus for the sale of hot soups during the coming winter.

Probably there are few of the readers of "Diet and Hygiene" who

realise what a profitable trade many of the itinerant merchants of our streets carry on, and it is far from any wish on my part to initiate opposition to existing institutions, but I cannot see why a new experiment should not succeed, and a basin of good steaming soup would be, to say the least, a delicious addition to the toothsome tuber or floury snowball, and could be retailed at a price within the reach of the most attenuated pocket.

Undoubtedly the potage would require to be regulated with an eye to the neighbourhood. Where the inhabitants are very poor I should suggest lentils or onions as the basis, and I do not hesitate to affirm that these vegetables might be so cunningly concocted as to give universal satisfaction, and not even offend the palate of the most fastidious. In the West End and localities where, rightly or wrongly, money is supposed to be expended with a freer hand, a suitable effusion of meat and vegetables might take the place of the humbler fare, and would come "as a boon and blessing to men" who are unable to obtain refreshment in the small hours of the morning, and whose living necessitates their being out and about.

Whether through ignorance or indifference the value of soup as a dietetic invigorator is unrecognised by the majority of the millions in our congested Metropolis, and the fact of being able to obtain a basin of this savoury commodity at all hours and at small cost, would educate a recognition of its value. Tickets might also be distributed by persons of generous proclivities, available at any of the stations, which would prove an inestimable advantage to the poor who have to tramp the streets on the off chance of earning a precarious existence. The picture of a shivering child being provided with and relishing a basin of steaming comfort and a glorious slice of home-made crust and crumb, is a thing of beauty to be desired in our thoroughfares, and the new strength which such comestibles would impart to an ill-clad woman or a starving man might enable them to have another try against a run of ill-luck, and perhaps that new effort might, like the attempt of the spider that Bruce watched, succeed.

Even if the venture to provide our streets with convenient *al fresco* restaurants proved a complete failure, the barrows or stalls could be disposed of at a trifling loss on the original expenditure, and the

very utmost amount to be credited to the wrong side of the ledger would be a sovereign or so on each. But that is the dark and improbable side; it is far more likely they would not only meet a public want, but prove a safe investment, which, to say the least, would realize a handsome percentage and do a good turn to suffering humanity.

GILBERT D. SUTHERLAND.

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## THE LIFE-HISTORY OF ERGOT.

UNLESS Ergot be very unjustly slandered, it is answerable for some of the most horrible epidemics that history records. The black-death, the sweating-sickness, and a dreadful malady in which sinews shrunk up, putrid limbs turned black and dropped off, and the wretched victims either died, or still worse, lived in their misery,—all these horrors are said to have followed the use of a peculiar purplish bread, which we are compelled to believe was Ergoty.

The cause of Ergot is a fungus now known as *claviceps purpurea*. It most frequently selects rye, *secale cereale*, which, when infected with Ergot used to be called *secale cornutum*, from the horn-like shape of the fungoid mass, which some compare to a large caraway-seed, and when broken up among grain in a granary is said to be occasionally mistaken for mouse-droppings.

Its life-history is concisely this; the perfect fungus produces wind-borne spores which, like pollen, are wafted everywhere. Those which alight on a suitable material, and ordinary damp earth seems to be quite suitable,—have two methods of procedure to choose from. Either the spore produces a mass of mycelium which remains quiescent till May or June and then developes into a perfect claviceps; or it produces a conidium or mass of small spores, held together by a kind of honey-dew, a sticky saccharine matter which has been observed to be sought and carried as honey by eighteen species of dipterous insects. These insects subsequently visit certain cereals and grasses, the deposited conidia take possession of the ovary, develope into the perfect fungus, and disperse spores to start a fresh cycle.

R. A. CHUDLEIGH.

# COSTA RICA AS A HEALTH RESORT.

The climate of the highland regions of Costa Rica is described by friends who are living in that beautiful country as nearly perfect: the temperature is high but equable, the sunlight constant, and the vegetation surpassingly magnificent. A couple of years ago an attempt was made to establish a health resort in a beautiful place, which seemed to meet the exact requirements of the age. Unfortunately the scheme dropped through in consequence of the small support which it received from the public. There must be many persons with good means and weak lungs who have tried the great European health resorts and who would be glad of fresh fields in which to roam. To these Cartago and San José seem to offer many attractions, and a winter in a land of perpetual summer with the thermometer constantly ranging from 70 degrees to 80 degrees night and day, would be a truly novel experience. One of my sisters who, however, is not an invalid, has been staying at San José for two years, and seems to have decided to make it her permanent residence. Prices are rather high, I believe, but there is much to see, and such an excursion would be something to talk about all the rest of one's life. Steamers run from Southampton every alternate Thursday to Porto Limon, and the journey from there into the interior of the Republic would be no great matter. A good stock of clothes and books should be laid in, and thus heavy expenses would be prevented. The climate is very healthy and people live long, while the relief to an over-strained mind and jaded body would be great.

S. U. M.

# REVIEWS AND NOTICES.

## ANNUAL REPORT OF THE NATIONAL HEALTH SOCIETY.

The fifteenth annual report of this unobtrusive, but very useful, Society, shows that it continues its operations with unabated vigour. During the past year, numerous

courses of lectures have been delivered in various parts of the Metropolis and of the provinces, under the auspices of the National Health Society; the principal subjects having been Household Sanitary Management, Domestic Economy, Cookery, and Nursing of the Sick. That these classes have been well appreciated is evident from the circumstance that one course of lectures—On Nursing the Sick—delivered by Miss Homersham, at Belsize Park, was attended by one hundred and fifty ladies. Of these, fifty presented themselves subsequently for an examination upon practical nursing and the management of a sick room, and twenty succeeded in passing, and thus obtained the Society's certificate of proficiency. Ambulance classes have been held by Messrs. Owen, Lankester, H. W, Gell, and Edgar Willett, with highly satisfactory results. It is not often that such a society as this can conduct its business at a profit, but on reference to the balance-sheet for the past twelve months, we notice that, out of the modest income of £593, no less than £241 were derived from the proceeds of lectures, while the expenses of these lectures was only £173. The Society is eminently deserving of support. A subscription of one guinea per annum, or a single payment of ten guineas constitutes membership, and entitles the member to tickets for all lectures, and to copies of all the publications issued by the Society. The Secretary, Miss Lancaster, attends at the Society's Offices, 41, Berner's Street, W., daily (except Saturday), from 2 to 5 p.m.

# NOTES AND NEWS.

A Model (?) West End Mansion.—We are too much in the habit of associating the idea of epidemic disease with poor dwellings, but a startling proof of the contrary occurred some time ago in one of the finest-looking and most expensively built houses in the West End. A thorough investigation, conducted by a gentleman of high sanitary attainments, revealed such a state of things as could hardly have been believed to be possible. The cisterns for the storage of water for drinking and culinary purposes were found to be placed in positions almost inaccessible for the purpose of cleansing them. As a consequence there was a thick deposit of offensive slime and mud at the bottom of the cisterns actually swarming with insect life, not of recent development either, as was shown by the presence of the remains of other animalculæ which had previously lived through their allotted term of existence in the same cisterns. As regards the drains, they formed an intricate network under the basement, having direct communication with the house by common grids placed in the sculleries as well as in the pantries. At no part of this sub-drainage system was the fall to the street sewer more than two feet; and the arrangements for flushing the drains were so imperfect and inadequate that the deposit in them was found to be copious and offensive. It is scarcely necessary to observe that when the fires were burning, or when the windows and doors of the house were closed and the gas was lighted, no traps or other mechanical contrivances could prevent the ingress of sewer gas into the interior of the house, thus most seriously endangering the health and lives of the numerous persons residing in it.

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The Pine Therapeutics Company has been formed for the purpose of carrying out the system of pine treatment in England, as successfully conducted for some time past at the Hydro-Therapeutic Establishment at Farnborough, Hampshire, and described at considerable length in an article on the Pine Treatment published in Diet and Hygiene for February, page 66. The board of direction is a strong one, and includes two London medical men. The share capital is £60,000 in 12,000 shares of £5 each; the first issue being 9,000 shares. The vendor disposes of the extensive freehold premises and goodwill of the going concern for £35,000, of which £15,000 are taken in fully paid shares. Seeing that since the erection of the baths the success has so far exceeded anticipations as to necessitate the addition of more rooms (the present accommodation is for more than 100 visitors) the shares of this Company should prove a valuable investment. The temporary offices are at 11, Billiter Square.

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## ON INHALATION AS A REMEDIAL AGENT.


By WILLIAM ABBOTTS, M.D.,

*Formerly Physician to the North London Hospital for Consumption and Diseases of the Chest.*


"*Nihil novum sub sole!*" "Nothing new under the sun," is a proverb which often applies, even when least thought of. Many persons talk of inhalation in the treatment of certain diseases,—notably, affections of the respiratory organs—as if it had been recognised during the last few years only. Yet, there are no remedial measures of greater antiquity. Hippocrates, nearly four hundred years before the Christian era, Galen, and a host of other old Greek and Roman writers on Medicine, recommended the inhalation of the fumes of various substances in the treatment of catarrh, cough, and different lung-disorders. At a somewhat later period, we find Haly Abbas and other celebrated Arabian physicians who had become the sole possessors of scientific learning,—Europe being temporarily enveloped by a cloud of ignorance,—similarly speaking in favour of various remedies used in the form of inhalation.

One of the oldest medicinal agents, employed as an inhalant, was the vapour of pine-cones, in asthma and incipient consumption. And, at the present time, this is frequently resorted to, with beneficial results; the main difference between "ancient and modern" being

that while the former had to burn the cones, in order that their patients might duly inhale the fumes given off, we avail ourselves of the resources of improved chemistry, enabling the delicate volatile essences of the *Pumilio* pine, the *Encalyptus*, &c., to be brought into contact with the mucous membranes of the throat and lungs, in the form of fine spray. This plan of treatment has been brought to the height of perfection in some parts of Germany, and more recently in our own country, at the Pine Therapeutics Establishment at Farnborough, in Hampshire. The benefit derived by sufferers from pulmonary complaints, through a sojourn during the autumn in certain localities, is attributed to the healthful emanations given off by the pine trees ; Weybridge and Bournemouth in England, Arcachon in France, and Upper Savannac in the United States, owe their reputation to the circumstance that large numbers of pines grow in their immediate neighbourhood.

Reverting to the history of inhalation, we find but little progress made from the remote periods already touched upon, until the close of the last century, when the brilliant discoveries which were made of oxygen and other gases, induced many distinguished physicians and scientists to turn their attention to a study of their properties when systematically inhaled by persons suffering from chest affections,—"*poitrinaires*," as the French would style them. Without enumerating the numerous Continental workers in this field of investigation, we may content ourselves with the following roll-call of British men of science :—Beddoes, Humphry (afterwards Sir Humphry) Davy, Cavendish, Erasmus Darwin, Priestley, and James Watt, whose name was destined to be subsequently immortalised in connection with the steam engine. Dr. Beddoes and Davy conjointly established an institution at Clifton, near Bristol, for the purpose of investigating and testing the value of Pneumatic Medicine, as the mode of treatment by the inhalation of various gases was then called ; and, for some years, patients flocked to Clifton in considerable numbers from all parts of the country, to avail themselves of the facilities which were afforded there. In an article intended only as a general sketch of the subject it would be impracticable to discuss fully the working of the Pneumatic Institution ; but those of our readers who desire a detailed account of Beddoes' and Davy's labours

would find much interesting information in Dr. Beddoes' "Letter to Erasmus Darwin, M.D., on a New Method of Treating Pulmonary Consumption, &c.," published in 1793; in Davy's "Chemical and Philosophical Researches," published in 1800, and in the valuable Memoir of Sir Humphry Davy, issued at a later date, under the editorship of his brother, Dr. John Davy.

Diverse circumstances, amongst which may be included the too sanguine expectations of the founders of the establishment at Clifton, the costly nature of the apparatus employed, and the inadequacy of the funds at the command of the promoters, led to the ultimate abandonment of the project, but not before researches had been conducted on a sufficiently large scale to show that much benefit might be derived from the inhalation of some of the gases experimented upon.

During his residence at Clifton, Davy made practical inquiry into the physiological effects of all the gaseous agents then known. While conducting some researches into the action of nitrous oxide on the living system, he discovered that its inhalation mitigated the pain of cutting a wisdom tooth, and other observations led to his throwing out the suggestion that, as it was "capable of destroying physical pain, it might probably be used with advantage during surgical operations." From this discovery by Davy, and the subsequent one that the inhalation of ether, when pure or when medicated with conium or some other vegetable sedative, allayed the spasmodic irritation in asthma, whooping cough, and some analagous affections, may be traced the discovery of the inestimable boon of chloroform as an anæsthetic.

The gas with which the greatest number of successful experiments was made by Beddoes and Davy was oxygen; of which Laennec, a well-known French author, afterwards remarked in his standard work on diseases of the lungs that "no means could seem better calculated to combat the difficulty of breathing which arises from increased want of respiration, in spasmodic asthma, than the inhalation of oxygen;" but, he added, the drawbacks to promptly procuring it formed almost a complete bar to its employment. This no longer militates against the resort to it, in suitable cases, for oxygen can now be quickly prepared, and at such a moderate cost, as to allow of

its general use. Further, the trials which have been made of it by recent observers show that it possesses remedial powers of no mean value.

Foremost amongst these experiments stands the complete series, extending over several years, made both upon animals and human beings, by my esteemed friend Mons. Demarquay, of Paris, in conjunction with Mons. Lecomte; fully described in a Report presented to the French Academy of Sciences.

Demarquay and Lecomte state that a healthy person can readily inspire from twenty to fifty litres without any inconvenience; and that the daily inhalation of this gas is usually followed by increase of appetite and general vigour, with marked improvement of the digestive functions. The cases in which oxygen inhalations are especially serviceable are those of diseases attended by debility, or impoverishment of the blood. After a short period the lips and skin assume a healthier colour, the eyes look clearer and brighter, and greater vitality is manifest. In asthma and chronic bronchitis oxygen sometimes acts like a charm by relieving the difficulty of breathing. Dr. Beddoes, writing of the effects of the respiration of oxygen, says:—"No sooner does it touch the lungs than the livid colour of the countenance disappears, the laborious respiration ceases, and the functions of all the thoracic organs go on easily and pleasantly again." According to a table published in Beddoes' book of cases treated by oxygen inhalation, out of 93 cases of different affections, 49, or more than half of the whole number, were cured, and 30, or one-third, relieved, leaving only 14 in which no beneficial effects were obtained. The most satisfactory results were obtained in asthma,—22 cases, 10 cured, 9 relieved, in 3 no effect produced; in epilepsy,—7 cases, 5 cured, 2 relieved; and in lepra and psoriasis, 4 cases, 2 cured, and 2 relieved. Oxygen is contra-indicated in disorders accompanied by much fever, acute congestion, or hœmorrhage; and, although productive of benefit in the earlier stages of consumption, it is wholly inadmissible at a later period of that disease. The quantity of oxygen which may be inhaled at one sitting varies, proportionately to the age and strength of the patient, and the nature of the case, from 4 to 20 pints once or twice daily; at first, in every instance, the gas should be mixed with atmospheric air, so as

to avoid the possible production of bronchial irritation. The period during which oxygen inhalation should be continued is from a few minutes to a quarter of an hour or longer.

Besides oxygen, several other gases have been employed therapeutically, and some of them possess valuable properties. The principal are chlorine, nitrogen, hydrogen, nitrous oxide, carburetted hydrogen, and carbonic acid.

Chlorine gas has been very highly spoken of by some writers, and especially by Cottereau in "*Archives de Medicine*," vol. xxiv.—mainly in connection with the treatment of consumption ; and some of the authors referred to have even gone so far as to credit it with the cure of this affection. The circumstance which first led to the trial of chlorine inhalations in consumption were rather singular. Mons. Gunnal, connected with a large factory of printed calicoes at St. Denis, observed that those workmen who happened to suffer from phthisical symptoms experienced great relief, while some rapidly recovered their health, owing to their inhaling the fumes of the chlorine disengaged in the different processes of manufacture.

So far, good ; but, unfortunately, there is always an element of uncertainty about therapeutic observations made by non-professional men. And so it would appear to have been in this instance ; for Louis, a French physician of repute, states in his "*Recherches sur la Phthisie*," that, having studied the action of chlorine, when inhaled, in the cases of upwards of 50 consumptive patients, the results were not sufficiently satisfactory to warrant him in drawing very favourable conclusions. At the same time, Louis corroborates the statement of Mons. Toulmouche, of Rennes, that the inhalation of chlorine gas is efficacious in the treatment of chronic pulmonary catarrh, or bronchitis.

Experiments which I have made have led me to the same opinion as Louis, with regard to the inutility of chlorine vapour in consumption. The inspiration of chlorine always produces, even in healthy individuals, no small degree of irritation of the bronchial mucous membranes, with cough and expectoration. although the gas has been previously considerably reduced in potency by admixture with atmospheric air.

(*To be continued.*)

# THE SKIN.

By Sir Alfred Power, K.C.B.

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There's a skin without, and a skin within,
A covering skin and a lining skin;
But the skin within is the skin without,
Doubled inwards and carried completely throughout.

The palate, the nostrils, the windpipe and throat,
Are all of them lined with this inner coat,
Which through every part is made to extend,
Lungs, liver, and bowels, from end to end.

The outside skin is a marvellous plan,
For exuding the dregs of the flesh of man,
While the inner extracts from the food and the air,
What is needed the waste of the flesh to repair.

Too much brandy, whiskey, or gin,
Is apt to disorder the skin within,
While if dirty and dry the skin without
Refuses to let the sweat come out.

Good people all, have a care of your skin,
Both that without and that within,
To the first, give plenty of water and soap,
To the last, little else but water, we hope.

But always be very particular where
You get your water, your food, and your air,
For if these be tainted, or rendered impure,
It will have its effect on the blood, be sure.

The food which will ever for you be the best,
Is that you like most, and can soonest digest,
All unripe fruit and decaying flesh
Beware of, and fish that is not very fresh.

Your water, transparent and pure as you think it,
Had better be filtered and boiled ere you drink it,
Unless you know surely that nothing unsound
Can have got to it over or under the ground.

But of all things the most I would have you beware
Of breathing the poison of once breathed air;
When in bed, whether out or at home you may be,
Always open the windows and let it go free.

With clothing and exercise keep yourself warm,
And change your clothes quickly if caught in a storm,
For a cold caught by chilling the outside skin
Flies at once to the delicate lining within.

All you, who thus kindly take care of your skin,
And attend to its wants without and within,
Need never of cholera feel any fears,
And your skin may last you a hundred years.

## SUICIDES.

When a poor creature, worried to death by suffering and hardship, and hardly responsible for his actions, determines to hurry himself out of this evil world, and to rely rather on the mercy of God than on that of his fellows, it is noteworthy that he prefers using those weapons with which he is most familiar : and many writers say that this is curious. I don't, for my part, think it so. Is it not most natural that he should resort to those instruments or agents of which he has some knowledge, rather than fall back on those of whose powers he is ignorant ? In towns I have noticed that suicides resort to very many methods seldom thought of in the country. Poison is very much more commonly used in the former. Again, suicides frequently use the agents with which, in their calling, they have become familiar. Soldiers resort to firearms, and doctors to narcotics —opium, chloroform, and chloral, for instance—and I feel sure that a large proportion of those cases of death from overdoses of poison, mentioned with such startling frequency in the medical papers, are really instances of suicides. The *manner* of suicides is often singular, and a very little inquiry shows that the sufferer rather calls for pity than reproof. I remember a tall, melancholy man walking into the out-patient room of the Birmingham General Hospital. His neck was muffled up, and with great deliberation and impressive gravity, he unwound the wrappers and shewed a ghastly cut extending from ear to ear. Another unsuccessful suicide suffered from great nervousness and depression, and it was startling to hear him one morning implore Mr. Oliver Pemberton, the surgeon under whose care he was entered, for forgiveness. "My good friend," said that eminent surgeon, "you must not ask me for pardon, you must look elsewhere." "But," exclaimed the wretched sufferer, "I should be more happy if you would forgive me." "You have my forgiveness, then," said Mr. Pemberton, "but that won't benefit you." The would-be suicide nevertheless looked relieved.

Cold water in winter is not much relished by suicides, though in summer it is far more often resorted to. A case at Horsfield Gaol lately was singular : the prisoner killed himself by forcing a piece of cloth down his throat by means of a wooden spoon, and to obtain

the necessary amount of pressure he rested the wooden bowl of the spoon against the floor. There is a certain strange imitation in the methods adopted. When the late Sultan killed himself by opening the veins at the bend of the elbow, many persons attempted to cut life short in the same fashion. During the reign of the first Napoleon, a soldier hung himself from a stout nail fixed in the wall of a corridor in the Hôtel des Invalides. Another soon followed, and it is reported that altogether fifteen soldiers killed themselves by hanging themselves from the same nail. Then, but not till then, the authorities had the nail removed, and the epidemic was cut short. I once saw a woman who had tried to kill herself by taking opium. She was a fine, clever young person, determined to a degree. I have never seen anyone so calm and courageous, and apparently so little likely to destroy herself. As far as I could ascertain she had swallowed a large mass of opium to spite her husband, whose life did not seem a particularly pleasant one. But the would-be suicide was so resolute and strong, and so determined not to die, that the stomach pump was easily used with good effect, and she seemed none the worse a few hours later for her escapade. In another case a man placed himself close to a large toy cannon which he discharged into his body, comparatively little injury resulting. From my experience of suicides I am quite ready to admit that there is generally some derangement of intellect, though by no means invariably. Probably, too, the number of self-murders is very considerably greater than is commonly supposed; many deaths considered to be accidental or natural being really suicidal.

*Wimborne.* A. J. H. Crespi.

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# REVIEWS AND NOTICES OF BOOKS.

## THE ART OF COOKING.

1. Cassell's Shilling Cookery. Edited by A. G. Payne. Cassell & Co., London.

2. What to do with the Cold Mutton. Richard Bentley & Son, London.

3. EVERYBODY'S PUDDING BOOK. Richard Bentley & Son, London.

4. THE VEGETIST'S DIETARY AND MANUAL OF VEGETABLE COOKERY. The Vegetarian Society, Manchester.

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SOME people may be said to live—more's the shame to them—to eat ; the rest of mankind find it necessary to eat, to live ; but we will promptly dismiss the former class from consideration as unworthy of any further notice than a passing shrug of contempt or a look of disgust, and deal with our subject from a rational point of view.

Food is a primary necessity of existence, and must, by reason of the construction of the human frame, and the constant need of renovation or reparation of the used-up tissues, occupy some share of the attention and time alike of the untutored savage, and of the individual of the highest intellectual culture. Diet is a secondary matter, yet equally important with food itself ; and cookery is the useful art which enables us to not only meet our daily requirements, but also to make the most of the varied articles of food with which Nature has provided us.

It has often struck us that the part played in our life-history by cookery is greatly under-estimated. If we are about to set out upon a long journey or to undertake some more than usually trying task, do we not see to it that we preface our day's business by making a good breakfast ? If we wish to obtain a favourable issue to some interview of importance, do we not hope that we may drop in upon the individual whom we have to see about the time when a satisfactory meal has mollified his disposition and brought out all the amiable traits in his character ? And what is most likely to effectuate this desirable condition of things ? Certainly, good cookery. We shudder as we think how many an act of injustice, how many a cruel deed, must have found its origin in bad cookery.

Again, with regard to that vital question, Health. Thousands of men wander about, vainly trying to do the work which Providence has allotted to them, dyspeptic, irritable or melancholy (according to their temperament) and wholly unfit for their ordinary avocations,

all through bad cookery; men who, had their food been properly prepared, would be in just the opposite to their present state; who would have been bright, lively, and energetic, instead of being dull, inanimate, and listless. One of our great writers has pointed a moral (in cookery) by the assertion that, in the "good old days," when men, women, and even children, were hanged for the most trivial offences, many a human creature has undergone the extreme penalty of the law because the judge had fared badly at breakfast, or in other words, was suffering from the consequences of indifferent or bad cooking. For additional illustration of the appositeness of the views we advance, our readers have but to take from their shelves a volume of any distinguished novelist, and wherever domestic felicity is depicted, they will not fail to find that good cookery engenders good humour and puts a man at his best. The meal, frugal it may be, but well prepared; the cleanly room; the table duly arranged for the occasion; the family group ready to do justice to the viands placed before it; everything to insure the realisation of the Shakespearian grace, "Now, good digestion wait on appetite; and health on both."

Regarded from a merely literary standpoint, much cannot be said about cookery-books, of course,—the word "course" comes in well, somehow, in connection with cookery—and when one tries anything like consecutive reading, he must undoubtedly arrive eventually at much the same opinion as the Scotch gardener who was left in charge of a house while the family were away at the seaside. To prevent Sandy's feeling too much the loneliness of his position, his master kindly told him that he might have any books he liked out of the library so as to relieve the monotony by reading. Sandy availed himself of the permission and selected one of the biggest volumes he could lay his hands upon, namely, Johnson's Dictionary. With stolid perseverance he beguiled his leisure hours by steadily perusing the book right through, from A downwards, till, at the period of the family's return, Sandy had almost got through the alphabet. "Well," said his master, two or three days afterwards, "what books did you read?" "Not more than one," replied the gardener, "written by a man of the name of Johnson: mighty clever, but very disconnected."

As with our honest gardener's dictionary, so with cookery-books. One recipe follows a wholly dissimilar dish with such rapidity of transition that we are fain to pronounce with Sandy the opinion, "mighty clever, but very disconnected," but for our bearing in mind that both dictionary and cookery-book are meant for reference and not for consecutive perusal. For the former purpose, all of the works whose titles appear at the head of this Notice, are admirably adapted, each in its own particular way, as we shall show directly. They are as cheap as they are good; for, a single shilling would purchase either of the first three in the list, while the vegetarian guide, smaller both in size and price, can be procured for sixpence.

In the preface to Cassell's Cookery the editor takes the opportunity to demonstrate that, in view of the great advancements made of late years in the art of cookery, and the consequent cultivation of more fastidious, indeed, luxurious tastes, we must not lose sight of the grand fact that the secret of good cooking is *economy*, in the best sense of the word. A good cook will turn to full account all the materials placed at his or her disposal, whereas a bad cook, owing to ignorance, is constantly guilty of the folly and crime of wastefulness. In proportion as food is wasted, so, it may be truthfully said, the poorer classes of the community are robbed. But how often, alas, the poorer classes lay themselves open to the charge of self-robbery!

Let us suppose, for instance, that we place a couple of shillings in the hands of the wife of an artizan or a labourer, and suggest that she should lay it out in providing a dinner for herself and her husband. Nine times out of ten, the probability—we had almost said the certainty—will be that she will go straightway to the butcher, that she will disburse nearly the whole of the money in the purchase of a steak or a chop; that after getting the meat home she will bake or grill it till it is half black and almost as destitute of moisture as the dish upon which it is placed, and that when her husband returns she will place this almost repulsive looking mass of overdone meat on the table with a few watery potatoes, or, it may be, with the accompaniment only of a piece of bread. Compare this unappetising, unsatisfying meal with the savoury, nutritive repast which a Frenchwoman would concoct at a similar outlay!

As a matter of fact our national loss of provisions, not through

wilful waste, but through woful want of knowledge, is enormous; it is almost incalculable. We cannot imagine any way in which a benevolently disposed lady could more advantageously occupy her spare time and energy, or advance the interests of the working classes, than in instructing their wives and daughters in simple cooking and domestic economy.

We trust that from the foregoing remarks it will not be supposed that we hold the lower ranks alone to blame in this respect. The food wasted, because improperly cooked, in many a middle-class kitchen would go far towards sustaining a family of humbler position. As we ascend higher in the scale, the wilful destruction of partly-consumed articles going on in many kitchens is no less astounding than true. More food is destroyed through ignorance and carelessness than could possibly be made away with through gluttony.

Cassell's Cookery is divided into two parts, namely, Recipes and General Directions. Twenty-four chapters include stock, soup, sauces, lessons in plain cookery (a very useful chapter), fish, meat, poultry and game, pastry, puddings, jams, vegetables, the ornamentation and arrangement of the table, invalid cookery (another chapter deserving of note, where all are good), home-made wines, and a variety of other subjects.

The title of the first-named of Messrs. Bentley's publications is at the first glance somewhat misleading, that is to say it does not convey any adequate idea of the comprehensiveness of its contents. Twelve pages suffice to deal with the subject referred to in the title, and the rest of the book treats of numerous réchauffés of other meats, fowl, fish and game, soups, savoury dishes, salads, sauces, dressed vegetables, pastry, preserves, &c., comprising many recipes and directions, valuable both to the young housekeeper and to the most experienced cook.

But, for pastry, tarts, and puddings, Everybody's Pudding-Book carries off the palm. It is singular what a little change housekeepers generally allow themselves in this respect, often virtually limiting themselves to rhubarb and gooseberries as fruit for puddings during one half of the year, and to apples during the other half. Under a judicious classification of months, the author gives such a choice of seasonable puddings, pies, and the like, as has never before been presented within the limits of a small, handy volume.

The Vegetist's Dietary is a manual of vegetable cookery, published under the auspices of the Vegetarian Society, and the recipes which it contains suffice to show that a vegetarian *menu* does not necessarily imply a scanty range of dishes. Any person of intelligence, whether holding vegetarian principles or not, would derive much useful information from its perusal.

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# OUR LABORATORY.

THE following is an analysis of a sample of *Bovril* received from Mr. John L. Johnston :—

| | |
|---|---|
| Moisture - - - - | 25·12 |
| Mineral Matter Phosphates and Alkali Salts - - - | 15·40 |
| Fibrine - - - - - | 36·37 |
| Albumen - - - - | 23·11 |
| | 100·0 |

A glance at the proportion of constituents demonstrates beyond a doubt the superiority of Bovril over the regulation beef-tea or extract of meat which our good grandmothers insisted upon as the regulation diet of the invalid, and which, in conjunction with port wine, was the almost invariable and orthodox regime of the old school of general practitioner. That beef-tea has proved beneficial as a temporary stimulant is perfectly true, yet it would be difficult to surmise in how many cases convalescence would have been materially hastened had this innocent and insiped medium been supplanted by the more nutritious, sustaining, and easily assimilated Bovril. It explodes one of the many traditions of the elders and supplies a much needed want.

* *
*

MR. C. T. KINGZETT, F.I.C., F.C.S., has forwarded several samples of *Sanitas* preparations. As a natural disinfectant it would be difficulty to speak too highly of the properties and practical utility of the eucalyptus and pine. The Sanitas Company have manufactured

their goods to meet the requirements of a thousand and one needs, and whether they appear in the bedroom as toilet accessories, in the scullery as soaps and powders, or in the stable and kennels as deodorisers and vermin destroyers they are equally efficient.

* * *

SAMPLES of *Florador* from the Florador Food Company have been received and examined. It is a thoroughly wholesome and nourishing preparation and adapts itself to the many requirements of the kitchen, nursery, and sick room.

* * *

A SAMPLE of *Edwards' Desiccated Soup* from Messrs. Frederick King & Co. proves to be portable, potable, and palatable whilst the whole soup offers a choice to the Vegetarian. They are handy and carefully prepared.

* * *

MESSRS. BEAN, GOSNELL, AND FRY send samples of their "*Coffee with Chicory*" and "*Coffee Extract.*" These are both admirably labour-saving and economical preparations. The hot water being added in the usual fashion, it is well nigh impossible to distinguish from the fresh made coffee, or coffee and chicory, as the case may be. Both extract and essence emit an excellent bouquet, and the full flavour of the berry is retained.

* * *

OUR analysis of a sample of *Sunlight Soap*, from Messrs. Lever Brothers, proves it to be a manufacture of a thoroughly hygienic character, and equally applicable to personal ablutions as to general cleansing. We have practically tested its capabilities not only as a toilet requisite, but upon our laboratory dusters (not the easiest things in the world to wash) with such effect that for the future we could be entirely independent of the laundress.

* * *

FROM Mr. Elias Jessurun comes a bottle of *Blackberry Brandy* and a bottle of *Clam Juice*. The former is an excellent liqueur, well-known and universally recommended by American physicians, and our experience proves not without good reason. The latter, the extract of the clam, a crustaceous creature hitherto sadly neglected as an article of diet in England, somewhat exultingly spoken of as containing 100 per cent. more strengthening matter than any beef

tea or extract of beef (actually a modest computation, since beef tea contains so little), to be utilised as the basis of a bouillon, the other ingredients being water, pepper, and salt. To those who are fond of oysters it will recommend itself, and as a flavouring to sauces, in which respect it deserves honourable mention. It will succeed admirably.

* *
*

THE examination of a sample of *Cook's Patent Meal* is productive of a strong recommendation to the readers of DIET AND HYGIENE to give it a practical trial. It is a thoroughly dietetic preparation and to those who are fond of porridge one of the most perfect meals to be obtained.

* *
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SEVERAL samples not yet examined, and analyses not yet completed, will receive notice in our next.

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IT is particularly requested that Dietetic and Hygienic preparations which require to be noticed in the following issue will be sent in during the next few days.

GILBERT D. SUTHERLAND.

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## TEA-DRINKING AND DECAYED TEETH.

A LONG and rather embittered correspondence has been carried on in the *British Medical Journal* this year. A few writers have supported the opinion that drinking large quantities of hot tea injures the teeth and gives rise to premature decay, while a larger number deny that there is any connexion between the two, and many instances are brought forward of good teeth in tea-drinkers and of bad ones in persons who never touch it. The evidence is conflicting, but at present the connexion between disease of the teeth and hot tea does not seem thoroughly established. No doubt the severe indigestion, often distinctly traceable to the inordinate quantities of hot tea consumed, may indirectly lead to loss of the teeth, although it is curious how much they will stand in some cases, how little in others. Very hot and very cold fluids are injurious to the digestion, and cannot

usually be harmless to the teeth. Very hard foods, like nuts, again, seem to cause toothache in some persons; so do sweets and acids for that matter. I often notice that small, feeble, nervous people, who have lost their teeth, suffer from indigestion, but I cannot ascertain, with any approach to certainty, how close the connexion is between disease of the teeth and impaired digestion. I have a strong suspicion that the feebleness, which gives rise to the bad assimilation of food, also accounts for the decay of the teeth. Heredity, too, plays an important part, as it does in all bodily weaknesses and peculiarities, and many people seem doomed to early loss of teeth, do what they will, while others, who are not more careful, escape. One of the best safeguards is to have decaying teeth at once attended to by a good dentist; another is the avoidance of acids; a third is cleaning the teeth regularly with a soft brush; a fourth not using such objectionable tooth-powders as charcoal.

A MEDALLIST IN SURGERY.

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## A VISIT TO A FRENCH KINDERGARTEN SCHOOL.

SOME time ago I visited an establishment in the Faubourg St. Antoine, known as "L'Ecole Professionelle." Having obtained a letter of introduction, I presented myself as an Englishman wishing to learn something of the Kindergarten and the Système Fröbel, as carried out at that institution, and I was received with courtesy and readiness to show me everything. This school, I should observe, is not in any way supported by the Government, and it is consequently a private one. The Kindergarten, or Fröbel system, has for its purpose the conveyance of knowledge to little children from the age of three to seven years by means of objects and elementary instruction *without books*, so that the mind of the very young is neither taxed nor fatigued by learning lessons by rote, but, as it were, pleasantly instructed by amusement.

In this school there were about sixty young pupils in two divisions. The first consisted of the youngest ones, who appeared happy

and full of play, and yet learned by playing. I saw a child four years old, on the day of my visit, who knew well the elements of geometry, though she could not read. She recognised at once the acute and the obtuse angle, the sphere, the cube, and the circle, and she could apply them on dictation to the formation of an object or figure. It may seem almost paradoxical to say this of a child who cannot write a word, and yet it appears very simple and instructive if we only trace step by step the way such knowledge is arrived at. The most primitive lesson which the child receives is a ball to play with—simple enough, and which no child objects to—half-a-yard of string is attached to the ball, which is covered with worsted netting of various colours. The child holds the string in one hand and is told to throw up the ball, which, of course, comes down again. Thus he learns the words "up" and "down." Then he throws it to the right and to the left, and learns both these terms—in fact, learns to distinguish his right hand from his left.

It is a rule not to confine a child's attention to one thing more than a quarter of an hour. Next he has a box of cubes put before him coloured red, each one centimètre (nearly half an inch) in size. He is first taught to arrange these in a row, and in this manner he learns to recognise a straight line. When this has been accomplished, he is shown how, by placing them together, certain elementary forms are made; and so these proceedings go on until the infant can, of his own intelligence, construct the outlines of many things in ordinary use, such as a window, a doorway, &c.

By degrees the little one, after having mastered the lessons with the cubes, is supplied with wooden bricks of a similar kind, always in mathematical proportion, so that there may be no chance of misleading him; and thus, after a few initiatory lessons, he is encouraged to exercise his own will, or, in other words, to play with them as he thinks best. But infants are very apt at imitation, and what one does another will try to do. Before playing with the cubes and the bricks they learn what is the surface and what is the angle, and so, in fact, they are instructed in geometry unconsciously.

Then the little ones are taught for ten or fifteen minutes, by means of a song or chant, the elements of social knowledge, such as "how flour is made," or simple figures of addition. Three-quarters

of an hour will now have been spent, and the pupils next troop into the yard, if fine, to do their gymnastics, or, should the weather be unfavourable, into a large empty room on the ground floor.

The children thoroughly enjoy their gymnastic exercise. All join hands and form a large circle, and the intelligent teacher, who beats time with a castanet, does not stand looking at them like a "grand lady," but moves round with them. They are all in high spirits, and have, in reality, a hearty romp. After five minutes the little ones march round two by two at a brisk rate, keeping step to the castanet, and singing some merry air all the while.

By this time their little legs are getting tired, and then they exercise their arms—right arm up, left ditto, down, up, down ; next extend to right, left, and so on. Afterwards the spinal column is bent forwards and straightened some dozen times, then another song, next another round, and finally a rest.

We have seen the ball, the cubes, and the bricks. Now there are other appliances of a corresponding character, namely, the circle, and the laths. The circle is a brass ring perfectly round, with a number of quarter sections of the same, mathematically correct. By the aid of these the tiny pupils learn convexity and concavity, and, after having made a few given forms of flowers, or fruit, or leaves, they are induced to try their own skill in figuring anything they choose.

The children sit on low stools with backs to them, and they have low tables, something like broad stools, before them, on which they work out their little problems in a knowing fashion. These tables are ruled out in squares of one centimètre each, mathematically accurate, so that the youngsters may regulate their work accordingly. When they have learned the circle and the sections of it, they then understand the elements of shorthand.

They had already learned the straight lines with the aid of the cubes, but there is another element yet—the angle. This is taught by means of ten bits of wood, all of precisely the same size and length, one centimètre broad and ten centimètres (about four inches) long, and these serve for various purposes, to teach addition, substraction, &c., but principally to show the angles ; and in this way elementary geometry is taught as a matter of play. That the pupils

understand it is conclusively proved by its application to shorthand, for they are taught that the section of a circle in a vertical position means one word or letter, and the same section in a horizontal position another, and so on as regards the angles and the straight lines, whether they are directed to the right or left, or whether the latter are thick or thin.

I saw a little child of seven years of age read off from the black board a shorthand phrase in natural history written from dictation, a circumstance which made me feel ashamed of myself. By these and similar means children can be led pleasantly along the path of learning, till they arrive at a considerable amount of knowledge without any straining of the intellect, or any burden on the understanding. Happy children! I have painful recollections of how, when I was a small boy seven years old, I was kept for many hours without any breakfast in a cold, miserable room by myself, until I had conjugated a certain verb in all its tenses. Is the general system of teaching much different now?

How pleasant is the path of knowledge for pupils who, fortunately, fall into the hands of those who *know how* to direct them! So with music; so with songs. The extraordinary results achieved by the Galin-Paris-Chevé system of music, by which a hundred soldiers taken at random from a given regiment can be taught to sing at sight—masses, as well as operatic music—*in three months*, without having previously possessed the slightest knowledge of the subject, proclaim a fact of more value than a million of opinions.

J. B.

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## SEA AIR.

It is an article of popular faith that sea air owes its virtue to the large quantities of iodine and ozone with which it is believed to be laden. Honour to whom honour is due; and if the salubrity of the coast be really due to those two interesting elements, by all means let them have the credit of it. But one of the tests for iodine is starch, which it causes to assume a violet hue. And if iodine were present

on the coast in anything like its reputed quantities, the "violet powder" with which ladies fortify their complexions, and which is composed mainly of starch, would soon become violet in colour as well as in scent. The absence of purple ladies from popular watering places must be taken as proving an alibi for the iodine.

With ozone the case is different. There is no doubt that it abounds near the sea. The two principal generators of ozone are first, electricity, and second, sunshine, acting on chlorophyll, or the green blood of vegetation. The former is likely to abound wherever there is friction of waves; but the latter would still more abound on heaths and downs, in woods and fields. So far as quantity of ozone is concerned, the sea beach may be far inferior to an inland glade. But to breathe ozone is anything but healthful. It begins with producing symptoms like those of influenza, and ends in death. Its virtue lies in its powers as a disinfectant. It is its purification of the air from putrescible matter, and not its respiratory value, that makes ozone beneficial.

R. A. CHUDLEIGH.

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## COLD WEATHER REGARDED FROM A SANITARY POINT OF VIEW.

ALTHOUGH it is a very common thing for persons of robust constitution and under or about the middle age, to designate a frosty morning as "fine, bracing weather," there can be no doubt as to the serious consequences of such a fall of temperature—especially a sudden fall—as we get at this period of the year, to the young and aged, as well as to invalids, or to persons who, on account of poverty, are unable to properly protect themselves against the cold. Below a certain point of temperature their vital powers become reduced to so great an extent that any prolongation of such weather may prove fatal, unless great care is taken to avoid undue exposure to its influence; with the very poor this is, in the ordinary course of things, impracticable, so far as they are themselves concerned, but, in their case, well-directed charity, in the shape of blankets, food, and fuel, might effect much towards diminishing the mortality which

swells the Registrar-General's Returns at this season of the year. Writing on this point, a metropolitan medical officer of health (the late Dr. Whitmore, for many years M.O.H. for Marylebone) made the following remarks in one of his reports :—"I have lately made it my business to visit the abodes of some of the poorest and most destitute classes in this parish. In many of the rooms there was not a vestige of fire in the grate, whilst in others there were only a few cinders, which had been purchased at the wharves from breeze-contractors, and which it was hardly possible to keep in a state of ignition ; as for any comforting amount of heat being obtained from such a fire, that was utterly impossible. The value of the means employed for preventing the diffusion of epidemic contagious diseases may be open to question and controversy, but there cannot be two opinions as to the efficacy of bodily warmth in resisting a class of diseases which, unfortunately, are too little thought of, and which, as a rule, are ten times more destructive of life than the most fatal epidemics. I therefore venture to recommend, as constituting the most urgent sanitary requirements of the poor at the present winter time, coals, blankets, and food."

J.M.

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## ON THE DISPOSAL OF OUR DEAD.

THE disposal of our dead is becoming a more and more pressing question every day, and the perusal of a short paper on Cremation, in DIET AND HYGIENE, No. 11, p. 454, induces me to contribute few observations upon it.

It appears to me that we ought not to assent too readily to the proposition that the only alternative lies between cremation and Mr. Seymour Haden's "Earth to Earth" plan. Putting aside for the moment all sentimental objections, as well as objections to cremation on the score of the destruction of evidence of foul play, the end to be aimed at in any method of dealing with the dead is simply—with due regard to outward decency—to ensure safety to the living. From a sanitary point of view cremation would undoubtedly effect this ; but would Mr. Seymour Haden's method do so ?

The objection to the ordinary system of burial is that our dead after a longer or shorter time, according to the greater or less destructibility of the burial envelope and the nature of the soil, find their way into our wells and poison our atmosphere; but will the matter be much mended by the more rapid decomposition of dead bodies, sought to be ensured by Mr. Seymour Haden's plan? Would not the result of that be simply to expedite the passage of my defunct neighbour into my well, and all the sooner to poison the air I have to breathe? A brick grave with a strong well-made wooden coffin would keep me safe from my neighbour's inroads for a considerable time, but Mr. Haden's method would set him free to find his way into my well forthwith. This appears to raise the question at once whether a method sufficiently practical could not be found by which my neighbour might be permanently kept to himself, and so prevented from effecting all that mischief to the living which is the ostensible reason for a resort to cremation? I think such a method might be found.

It seems to me that supposing an indestructible and impermeable envelope could be found in which to enclose the dead, the law might well enforce its universal use. Wooden coffins alone would of course be insufficient, and lead, even if economically practicable, would not be efficient for all time when in contact with the soil; but I think that hard glazed pottery-ware would be both economically practicable and permanently efficient. I would advocate the compulsory use of a glazed earthenware sarcophagus placed at the bottom of the grave to receive the wooden coffin, and covered with a lid hermetically closed by floating in with liquid cement. Potteries, such as those in the Bourne Valley, near Poole, could, I imagine, furnish such sarcophagi at a very reasonable cost, and the material would be for all time practically impervious. Undertakers would keep them of several sizes, and might be charged by the law to conduct no funeral in which a sarcophagus was unprovided. Sarcophagi such as these might be placed one above another in the same grave and at any period; a great saving of surface space would be thus effected, and one or two graves would then hold a family. Graves of this kind might be opened and re-opened as often as need be without offence or risk of desecration to human remains. No sentiment of any kind

would be outraged, any evidence of foul play would be perfectly preserved, all danger of pollution to wells or air would be effectually prevented, and cremation would remain simply as a luxury for those who might have sufficient idle time on hand during life to reason themselves into a morbid desire to concern unnecessarily about the disposal of their earthly tenements, when their tenancy should come to an end.

It appears, therefore, that the real issue lies not between cremation and Mr. Seymour Haden's plan, but between cremation and some such plan as above proposed. That such a plan is feasible and would be effectual, and might be easily enforced throughout the kingdom, I feel no doubt whatever.

O. PICKARD-CAMBRIDGE, M.A., F.R.S.

## NOVEL INVENTION.

THE WIREINE SOCK COMPANY, Manchester, have brought out the Patent Wirene Socks. These will entirely supersede the ordinary cork socks hitherto in use, as they keep the feet warm, are damp-proof and comfortable, and offer other advantages which must eventually bring them into universal demand. We should especially recommend them to all persons who suffer from coldness of the feet or from rheumatism.

# NOTES AND NEWS.

NEW HOSPITAL FEATURE.—At the Fever Hospital recently erected at Walker a telephone has been placed, communicating between the wards and the porter's lodge, enabling the patients' friends to converse with them, without any risk of infection.

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OPHTHALMIC AFFECTIONS IN SCHOOLS.—Dr. Cohn, of Breslau, has examined more than 10,000 scholars with reference to the alarming increase of short-sightedness amongst school-children. He reports that the children attending rural schools were almost free from the affection, but that it was more prevalent amongst them in proportion to the demands made upon the pupils, culminating

to the maximum in the higher schools ; also, that the degree of shortsightedness as well as the numerical proportion, increased from class to class, rising from the lower to the upper.

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FASHIONABLE FOLLIES.—It is a curious fact that the origin of many fashions may often be traced to deformities or other circumstances which it has been thought desirable to conceal, in persons of high rank. Charles VII., of France introduced long coats to hide his ill-shapen legs ; full-bottomed wigs were invented by a French barber in order to cover from view an unsightly lump on the shoulder of the Dauphin ; and the practice of wearing patches is said to have been devised by a lady of distinction, who was thus enabled to ingeniously obscure a wen on her neck. Many instances of a similar character could be given ; for example, an empress revived the fashion of wearing hoops, (so pleasantly ridiculed by Addison, in the *Spectator*) to prevent her condition from being known ; that a lady of very high position, having hit upon the expedient of wearing a long curl on one side of her neck to hide the mark of the former ravages of scrofula, almost every woman who could grow or buy a long tress of hair appeared with a one-sided curl ; and to crown the height of modern feminine folly, when a certain royal personage had the misfortune to suffer from an affection of the hip, inducing lameness, thousands of Englishwomen had their boots purposely constructed with one heel deeper than the other, so that when walking they might be compelled to limp as completely as the lady whose temporary physical ailment they probably found more easy of imitation than her good qualities.

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DEATHS FROM STARVATION IN THE METROPOLIS unfortunately figure too frequently in the reports of coroners' inquests ; yet, even those recorded bear a very small proportion to the thousands of deaths annually from slow starvation—in other words, from the defective working of the Poor Laws, which ought to be more intelligently administered, and more liberally interpreted. Our Poor Law authorities should lay to heart the lines written by Prior, long ago :—

" Hunger and thirst, or guns or swords,
Give the same death, in different words ;
To push this argument no further.
To starve a man, in law, is murther."

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ADULTERATED LARD.—A grocer at Liverpool was recently summoned before the Stipendiary Magistrate, and fined for selling adulterated lard without labelling it as such. The two excuses urged in defence were that bakers *preferred* it to pure lard for making cakes, &c., and that the defendant had discontinued its sale. The latter plea is almost invariably put in, in extenuation of the sale of adulterated articles. Like a boy who is under punishment, the culprit, upon being found out, always whines that he " won't do it again."

# Diet and Hygiene.

A FORTNIGHTLY MAGAZINE

OF

FOOD, DIETETICS, & HEALTH.


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## BRITISH HEALTH RESORTS.

### No. 12.—HASTINGS AND ST. LEONARDS.

"No SUNSHINE, no dry weather, no chance of going out-of-doors, *No-vember!*" Such was the gloomy, though true, observation made in our hearing a fortnight ago by a sick friend; a man in bad health, to whom a bright atmosphere, a climate free from much humidity, and plenty of exercise in the open air were more than usually

necessary, owing to the nature of his ailment. His moderate income rendered it impracticable for him to winter abroad, as had been recommended; at the same time, a temporary change to a more favourable climate was the one thing which seemed to afford a loop-hole of escape from a long and, probably, in the end, fatal illness. But why, thought we, should this unhappy invalid dwell upon the impossibility of his getting away to the South of France? There are many thousands of persons similarly circumstanced, who, like the Israelites of old, straining their eyes to obtain a glimpse of the Land of Promise, overlook the benefits within their immediate reach. We could name at least a dozen places in our own country to which we should send consumptives and other sufferers for the winter months in preference to the much-vaunted resorts in the South of France. Hastings, the Undercliff, Bournemouth, Falmouth, Torquay, Penzance, Marazion, and other names readily suggest themselves. For the present, we will limit ourselves to the first on this list, as being the nearest to the metropolis, and the oldest in point of reputation as a health resort.

Hastings directly faces the Channel, and has an aspect to the South and South-West, while it is sheltered by the range of hills (commencing at the summit of Castle Hill, shown in the accompanying sketch, and stretching away westward) which hems it in on the land side from the bitter North, North-East, and East winds, which are so inimical to all invalids, but especially to those suffering from pulmonary complaints. The effect of the mild winter climate thus produced is evidenced by the remarkable luxuriance of vegetation at Hastings. The beautiful shrub Euonymus grows freely in every direction, in the open air; the Veronica, acquiring a height of four or five feet, blooms unprotected nearly every winter; while the Camelia, Passion-flower, and many other delicate plants flourish out-of-doors to an extent never known in less favoured spots.

We learn from a valuable and complete Meteorological Report, drawn up by a medical practitioner in Hastings, Mr. Colborne, F.M.S., that one chief point for notice in the climate of this health resort is the remarkably small range of shade temperature. In Hastings during the two years, 1881 and 1882, the range was only 9·9; while in Ventnor it was 10·6, and in Torquay, Bournemouth, and Brighton

the range of shade temperature was between 12·0 and 13·0. As regards the temperature during the winter months (December, January, and February,) Mr. Colborne gives a table for four successive years, shewing a mean of 39°. The average rainfall yearly is slightly more than 32 inches.

Bright sunshine recorded at Hastings during an entire year amounted to 1824·7 hours, as against only 1197 hours registered in London during the same twelve months. In fact, Hastings during the period referred to was visited with the greatest amount of sunshine, as compared with all other British meteorological stations possessing sunshine recorders ; and this superiority over other places where observations were made was more particularly shown during the winter months,—a season at which it is most important in cases of consumption and various other pulmonary affections.

From the foregoing remarks it will be seen that the great advantage presented by the climate of Hastings is its equability. Although the average temperature is higher in winter than at most other places, still visitors there must not expect a markedly high degree of temperature. The advantages summed up briefly are :—1., A lower daily range ; 2. a larger amount of bright sunshine ; 3. moderate humidity ; and 4. protection from cold winds.

Dr. Theodore Williams, in his work on "The Influence of Climate in the Treatment of Consumption" gives the results of winter residences, of three months' duration, in the case of 243 consumptive patients, at the following health resorts, Queenstown, Cornwall, South Devon, Torquay, Ilfracombe, the Isle of Wight, the Channel Islands, Bournemouth, Bognor, Brighton, Worthing, and Hastings and St. Leonards. Of these different localities, Hastings comes out at the head of the list, both as regards the large percentage of improved, and the small number of worst cases. Next in order comes Ventnor, and after that place Bournemouth, third in respect of favourable results.

So far, it will have been seen, we have spoken of Hastings as a winter health resort ; but the same eulogistic terms would apply to the more sheltered parts of St. Leonards. Indeed it is a difficult matter for anyone not thoroughly acquainted with the local topography to state positively when he is in Hastings, (as originally

defined,) and when in St. Leonards. Hastings, at the sea front, ends at the Infirmary, a recently erected building, opposite to the Pier entrance, and St. Leonards commences at Verulam Place, where the Grand Hotel is situated. The two places, formerly distinct, and under two separate jurisdictions, are now united for municipal and other arrangements, and the whole borough is placed under the Hastings Corporation.

Hastings and St. Leonards are especially fortunate, for these watering places are in season all the year round, so to speak. No sooner do those persons who have made them their winter residence begin to leave them, spring visitors show themselves, and 'ere long the summer season is in full swing.

With the exception of a brief period in the height of summer, the temperature of Hastings generally is not excessively hot ; indeed, it is cooler then than most other places, owing to the prevalence of cool breezes from the sea. The principal wind during the months of June, July, and August, blows from the South-West, and traversing a large expanse of sea before it reaches the land, it is cooler than the land atmosphere, and consequently serves to moderate the heat in these three months, usually the hottest of the year. In fact, as was demonstrated by the late Mr. Savery, a surgeon at Hastings, the hotter it is inland, the cooler relatively does Hastings become, as the air, being more rarified over a large expanse of country, requires a larger amount of cold air from the sea to replace it. July is the hottest month, and the average temperature of the ocean in the latitude in which Hastings is situated is then 60°, according to Maury, the best authority on this subject. There is thus often a difference of 20°, or more, between the temperature of the atmosphere far inland and that of deep sea water. Hastings, being placed on the coast, at the line of junction of the two, enjoys the advantage of the tempering sea breezes. Returning to Mr. Savery's figures, let us take the summer of 1859, an exceptionally hot one throughout the whole island, for example, and compare the temperature at certain places. On July 13th, in London, the extreme heat of 94° was registered in the shade ; at Guernsey and Derby 83° were recorded ; at Torquay, Aspley (Bedfordshire) and York, 82° ; Hastings marked lower than the record from any other meteorological

station, viz.—75°. On August 12th, in another year noted for high temperatures, the thermometer registered at Exeter 84°·5, at Camden Town (London) 89°·5 ; and at Hastings 70°·2. Numerous other records in various years establish the correctness of Mr. Savery's conclusions.

It would be difficult to find anywhere a place more attractive in its general character and in its surroundings than the combined towns which form the subject of this article. An uninterrupted sea front of three miles, lighted after dusk with electric lamps, affords ample scope for exercise and recreation, close to the waters edge ; there is an excellent pier ; and the country in the vicinity of Hastings is remarkable both for the beauty of its scenery and the historical associations of the many places of interest within easy walking or driving distance. An inspection of the ruins of the old Castle, with the magnificent view to be obtained from the summit of the hill on which they stand, 200 feet above the sea level, will repay the trouble of performing a somewhat difficult ascent. By the way, why do the persons who show the Castle show also such a narrow Sabbatarian spirit as is evidenced in the placard posted at the entrance gate, stating that the ruins can be inspected daily, *except* on Sunday ? Are they afraid that some one would run away with the ruins, or mar the magnificent view ? We may have "sermons in stones," according to one of the greatest poets that ever lived, and there seems no reason why the castle should not be open to view, with certain reasonable limitations, on Sunday as on other days. The proceeds on Sunday might be devoted to charitable purposes, and would form a welcome addition to the funds of the handsome new infirmary.

Battle, taking its name from the ever-memorable encounter, known as the battle of Hastings, between the Saxons, under Harold, and the Normans, led by William the Conqueror, is six miles from Hastings, and can be readily reached by rail or by road. The remains of the Abbey are very fine. Near to Battle are Crowhurst, famous for its ruined Oratory and old yew tree, and Normanhurst Court, the seat of Lord Brassey. At Pevensey, some twelve miles from Hastings may be seen portions of a Roman city, Anderida, held, after the Romans had abandoned this island, by the Britons, until it was taken by the Saxons in 491, when a wholesale massacre of the inhabitants

took place; next, at the period of the Norman invasion, the conquering forces occupied it, and converted part of it into a castle, whose name figures frequently in the history of those times. Other castles near Hastings are Bodiam, the remains of which are remarkably perfect; Hurstmonceux, the first brick castle erected in this kingdom and also in good preservation, although it was built shortly after the battle of Agincourt; Camber castle, near to Winchelsea, which, like Rye, is a quaint town, full of reminders of England's past.

In the matter of public amusements, hotels, shops, and other things which go to make up the sum total of human desires and comfort, Hastings stands in the front rank of watering places, and, in every respect, has grown with the growth of its population. This was under 3,000 in 1801; now, seeing that it progressed from 29,000 in 1871, to 42,000 in 1881, the number of inhabitants must be nearer to sixty than to fifty thousand. If the shade of Dr. Baillie, a London physician of considerable repute "when George the Third was king," could revisit the place which he was the first to draw attention to, in 1790, as a desirable health resort, on account of its remarkably-sheltered position, he would find it difficult to recognise in the present Hastings, the insignificant little village of a century ago.

W. A.

BRITISH HEALTH RESORTS.—The following descriptive notices have appeared:—1, Leamington; 2, Droitwich and Its Brine Baths; 3, Bournemouth; 4, Isle of Wight, the Undercliff; 5, Ilfracombe; 6, Buxton; 7, Dinsdale-on-Tees; 8, Lowestoft; 9, Woodhall Spa; 10, The New Forest; 11, Clacton-on-Sea, and Walton-on-the-Naze.

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# LOUIS PASTEUR AND HIS METHOD OF TREATMENT.

By DR. A. J. H. CRESPI,
*Late Editor of the "Sanitary Review."*

M. PASTEUR'S persistency in claiming to have discovered an infallible remedy for the prevention of hydrophobia, induced my learned

friend, the Rev. R. A. Chudleigh, to ask me to visit Paris, and thoroughly investigate the work of the great chemist. As my friend was good enough to provide the sinews of war, I made the necessary arrangements and set off in June, 1886, just at the time when the inoculation craze was at its height. I took the precaution of writing to M. Pasteur, and explaining my mission, and I asked permission to wait on him. He replied courteously and promptly that I should be welcome, and that opportunities would be afforded me of seeing all I wanted. So much had been published respecting M. Pasteur, his appearance, manners, and pretensions, while his method of treatment is so well known, that all I could attempt was to observe curiously anything I saw, and describe it as accurately as possible. I am aware that hurried impressions from brief interviews with busy men are peculiarly liable to error, and may be ridiculed as valueless, or actually misleading, so that I only claim for what follows, that I have endeavoured to give a plain and unvarnished account of what I saw and of the conversations I heard. Arrived in Paris, I made my way to 14, Rue Vauquelin, Pasteur's rooms being, as far as I could ascertain, in the Ecole Normale. I passed through a plain wooden door, into a narrow, paved yard; there I found two other wooden doors to my left, and on enquiring, learnt that they opened into the waiting-room. The sight that met my eyes was very similar to that in any out-patient room in a large general hospital in England, with this difference, that whereas in an English waiting-room many of the sufferers look very ill, and are dirty, depressed and ragged, these people were exquisitely clean, well-dressed, and cheerful, and among them were many persons, whether spectators or patients I could not always ascertain, of superior social position. Much animated conversation was going on in all directions, and people were laughing merrily. At the end of the room, to the left, was a wooden railing, separating a smaller room or recess from the larger, and as I noticed a large crowd there, I made my way up to it and found a young man calling over a list of numbers and names. With some difficulty I reached the barrier and attracted his attention. I told him who I was and asked for M. Pasteur. He pointed to a very short man at his side, wearing a smoking-cap, and said, "There is M. Pasteur, pray speak to him."

Accordingly I passed through the gate, and advancing to M. Pasteur handed him my card. He glanced at it and remarked, "Will you wait till the doctors come? Pray take a seat in the large room yonder." I passed out again and waited three quarters of an hour. All this time names were being called over and more people were pouring in. I had a good opportunity of observing Pasteur in the meantime. He is short, stout, and elderly, with nothing striking in manner or appearance. He seemed extremely worried, preoccupied and busy. He is slightly lame, and his sight is bad, and he is extremely reserved, like most Frenchmen according to my experience of them. After a time I again passed through the barrier, and from the small room into a large inner one where I found many people: a quiet, orderly, animated well-dressed throng, a few of them patients, but the majority evidently visitors or inquirers like myself. One or two assistants marshalled the patients and conducted them to a medical man sitting in a chair. To the doctor's left was a table on which were arranged a dozen small glasses like custard glasses, containing the virus, a lamp, with a vessel of boiling water over the latter, and a few fine hypodermic syringes. The assistant received the syringe from the doctor, rapidly washed the needle in boiling water, filled the syringe with the virus, and handed it back to the surgeon who very rapidly injected the contents under the skin of the patient's side. Why M. Pasteur has chosen the side of the patient as the right place for the injection, is incomprehensible as almost any part of the body would apparently do equally well. True, M. Pasteur argues that *the nearer the centre of the circulation the better*, but physiologically I see no advantage in this. The operator then returned the empty syringe to the assistant, and the patient passed out through a door behind the former. Few of the patients minded the prick of the needle, though children were, of course, alarmed, and some of them cried and resisted. The cries and resistance of some of the children might easily deceive a layman, although a medical man would know how little they meant. The process was rapid, and scores of people came in quickly, were operated on, and passed out. All this time M. Pasteur was moving about, briefly speaking to his assistants, or addressing a couple of words to strangers. There did not seem to me any great air of seriousness among the patients and

spectators, indeed, I suspected that many looked on the whole thing as a joke, a small one it may be, but still a joke. With Pasteur's keenness of observation and retentiveness of memory I was not struck. The last time I saw him, just before leaving Paris, I wished him good-bye, when, looking at me absently, he said "You have not then been bitten?" "Many times," I replied, "but not of late, nor by a mad dog." Still, even of this I will not make too much; Pasteur must be a man of remarkable acumen and power, although he may not favourably impress strangers. I am not sufficiently conversant with his life-work to hazard an opinion. At the same time, I have known many eminent men whose writings and discoveries proved them to be geniuses, who did not convey, even to intimate friends, any impression of conspicuous ability. On my second morning in the rooms matters went on much in the same manner; there is little to add. Of Pasteur's kindness of heart, or rather, of his affection for children, there can be no reasonable doubt. As for the value of the treatment, that seems more doubtful than ever, and though his supporters do not allow anything to shake their faith, I do not think that the mortality from hydrophobia shews any diminution, or that hydrophobia has ceased to be, when it does occur, an incurable complaint.

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## ON INHALATION AS A REMEDIAL AGENT.

By William Abbotts, M.D.,

*Formerly Physician to the North London Hospital for Consumption and Diseases of the Chest.*

*(Concluded from page 493.)*

The other gases which have been most frequently used for inhalation are nitrous oxide, carburetted hydrogen, and carbonic acid. Nitrogen and hydrogen have also been similarly employed.

It is somewhat strange that nitrogen, the most widely-diffused gas in existence, constituting four-fifths of the atmosphere which surrounds the globe, should have formed the subject of so little investigation. When once the exact composition of the atmosphere

had been determined ; when it had been ascertained that nitrogen was unfit for respiration, and consequently for sustaining life ; and, when its earlier name had been given to it—Azote—indicating that fact, chemists seemed to think that they need not concern themselves further about this gas. Nysten is almost the only writer from whom any reliable information can be obtained concerning the therapeutical properties of nitrogen. He pointed out in his *Recherches de Physiologie et de la Chimie Pathologique* that the inhalation of nitrogen mixed with atmospheric air exerts a sedative influence upon the heart's action, from which circumstance he deduces the inference that it would be found of value in the treatment of the more acute affections of the respiratory organs. Mare corroborated these views by reporting a number of cases of consumption in which the inhalation of this gas acted beneficially by diminishing the force of the circulation. Demarquay's experiments led him to the following conclusions :— 1. That nitrogen tends to moderate inflammatory action when brought into contact with wounded surfaces. 2. That it also tends to promote adhesion. Reasoning by analogy, nitrogen inhalations might be expected to prove useful in the treatment of certain affections of the lungs, in which it is desirable to carry out these indications.

The remarks just made respecting the small number of experiments with nitrogen will certainly not apply to the case of one of its compounds with oxygen, namely nitrous oxide, or protoxide of nitrogen, for there are few gaseous substances which have formed the subject of more observation than this has done, since its discovery by Priestley, in 1776. Some of our readers may probably recognise nitrous oxide more readily when we speak of it as "laughing gas," the name by which it is commonly known, owing to the exhilarating effects which it produces when it is breathed for a little time. If the inhalation is continued beyond this stage, symptoms of intoxication set in, as evidenced by inability to walk or to speak, by general helplessness and relaxation of the muscles, and by an unconquerable desire to go to sleep.

Struck by the certainty and rapidity with which these results are produced, Sir Humphry Davy suggested that by various combinations of nitrous oxide and carburetted hydrogen, (which has properties

just the opposite to those of nitrous oxide), we should be "in possession of a regular series of exciting and depressing powers, applicable to every deviation from health." Over-sanguine though he was in making this anticipation, Davy effected an important step in the direction of the discovery of anæsthetics, as has been mentioned in an earlier part of this article. Next to Sir Humphry Davy, Riadore has made a more complete study of nitrous oxide than any other writer, fully corroborating all that had been advanced by the former observer; and he found it frequently successful, especially in the treatment of nervous affections. It seems probable, however, that in many of Riadore's cases the beneficial effects were due rather to the oxygen set free by the partial decomposition of the nitrous oxide during its inhalation than to the latter gas itself.

No very recent observations upon the remedial action of hydrogen have been recorded, but this gas undoubtedly possesses properties, if inhaled, which entitle it to some consideration. When a mixture of hydrogen and atmospheric air is breathed, the pulse becomes small and frequent, the lips and other superficial parts of the body assume a bluish tinge, the body becomes colder, owing to the rapid abstraction of heat by the hydrogen, and the patient evinces great drowsiness, and sometimes falls eventually into a sound sleep. These phenomena begin to show themselves within one or two minutes after the commencement of the inhalation.

Wetterstedt, of Stockholm, has recorded the case of a young phthisical woman, who inhaled a mixture of four-fifths of hydrogen with one-fifth of atmospheric air, for a quarter of an hour. At the expiration of this period sound slumber was produced, although the patient had suffered habitually from want of sleep, and the same result was obtained on every occasion when this treatment was resorted to. Beddoes found almost instantaneous relief from the inhalation of a mixture composed of one part of hydrogen and six parts of atmospheric air continued for fifteen minutes, in cases of inflammation of the lungs, accompanied by pain, full pulse, and flushed countenance; also in cases of croup. Reuss considered hydrogen inhalations beneficial in rheumatism.

Carburetted hydrogen, when mixed with atmospheric air in the proportion of one part of the former to twenty parts of the latter,

has also a marked sedative action, as evidenced by the rapid lowering of the pulse, which sinks as much as ten beats in a second, by giddiness and drowsiness. For this reason, Dr. Darwin recommended the production of an artificial atmosphere thus constituted, for use in modifying the air breathed at night by patients suffering from epilepsy, asthma, and spasmodic cramps, where the periods of recurrence are connected with increase of local excitability during sleep.

Occasionally, carbonic acid gas has been substituted for carburetted hydrogen (in the proportion of one to ten parts of atmospheric air) in a similar class of cases; and Drs. Percival, Withering, and other physicians have reported favourably of this remedial agent.

From the gases which have been enumerated, we may pass on to the consideration of the therapeutic properties of various chemical bodies which usually exist in the solid condition, but may be volatised by heat, when their gaseous vapour may be inhaled.

One of the principal of these is iodine. Slowly volatisable, even at ordinary temperature, it gives off vapour readily at an increased heat, and it would be sufficient to place some iodine in a small box with a perforated lid, and then to apply heat to the under-surface of the box, in order that the vaporised iodine may pass through the openings and be inhaled; but a better mode still is to put some tincture of iodine in hot water, when the iodine vapour will pass off with the steam. Another advantage of the latter method is that by the use of a suitable apparatus, the mixed vapour of iodine and steam may be steadily and equably diffused throughout the patient's apartment; a very useful adjunct to other measures in the management of infectious diseases, iodine being one of the best known disinfectants and deodorisers. Sir James Scudamore was in the habit of combining conium, or some other sedative, with the tincture of iodine, when specially inhaled by persons suffering from consumption and other pulmonary disorders. Iodine inhalations may also be frequently employed, with great advantage, for persons suffering from scrofulous affections, enlargement of the tonsils, or of the cervical glands, purulent sore throat, and deafness through inflammation of the Eustachian tubes.

The iodide of sulphur is sometimes administered as an inhalant

in humoral asthma and chronic bronchitis. The late Dr. Copland thought very highly of it in the moist form of asthma.

Carbolic acid, or phenol, has of late years been much employed for inhalation. It is one of the products of the distillation of coal tar, and when pure, exists in the form of long colourless crystals. At 95 degrees Fahr. it melts into an oily liquid, and at 370 degrees it boils, passing off into vapour. It may be inhaled, either by the patient breathing the vapour of boiling water, in which a small quantity of carbolic acid has been placed, or by means of a spray diffuser. When the spray of a solution, (half a grain to a grain and a half of crystallised acid to an ounce of water) is inhaled, in the first stage of chronic phthisis, or at the beginning of the second stage, considerable relief is obtained; the patient's breathing becomes easier and deeper: the stitching pain in the chest is dimished or wholly removed; the cough is less troublesome; and the expectoration is reduced. In the more advanced stages of the affection, the inhalation of carbolic acid is inadmissible, owing to the depressing effect upon the heart's action. Carbolic acid inhalations are often useful in asthma, diphtheria, scarlet fever, especially when the throat is much affected, and purulent catarrh. Tar, turpentine, and creosote are employed in a vaporised form, when stimulating remedies are called for.

Arsenical inhalations were held in high estimation by the ancients in the treatment of asthma, bronchitis, and catarrh. Arsenic is not so greatly used in inhalations at the present day, but cigarettes, steeped in a solution of arsenious acid, are smoked on the Continent, by asthmatic patients. Professor Trousseau recommended arsenical fumigations in consumption, and reported that the cough and expectoration greatly diminished under their use.

The ethereal prepartions, particularly sulphuric ether, are often valuable as sedatives and antispasmodics, when their vapour is inhaled. They are indicated, chiefly, in chronic bronchitis, spasmodic asthma, and whooping cough.

The inhalation of the steam of boiling water containing various vegetable sedatives,—camphor, conium, belladonna, hyoscyamus, hops, lobelia, and stramonium—is attended with beneficial results in all chest affections where any local irritability or troublesome cough exists.

Nitrate of potash fumes are an excellent adjunct to other treatment in chronic bronchitis, and in asthma, especially in that form which occurs in connection with hay-fever. Sometimes, indeed, nitre inhalations will effect prompt relief, though everything else has failed, as in the case of a well-known banker, for whom the writer prescribed them, after he had tried numerous remedies, without any good result. In this instance, the paroxysms, however, were immediately abated upon commencing to inhale the fumes; other favourable symptoms presented themselves forthwith, and the patient enjoyed sound sleep, free from any difficulty of breathing, or other untoward circumstances. Another remedy, used in the form of inhalation, is the chloride of ammonium, of service in encouraging the secretion of mucus in chronic hoarseness, and in chronic, dry asthma.

Different balsams and gum-resins possessing expectorant and stimulating properties, may be vaporised by heat, and the fumes inhaled, with favourable results, in cases of asthma and bronchitis; but this mode of inhalation has been replaced by the use of spray-diffusers, by means of which a great range of medicinal agents in solution can be administered as spray. The benefit obtained from their use in this manner, is due, partly to the therapeutic properties possessed by the various remedies, partly to the soothing effects of the steam from the hot water in which they are dissolved. It would be impracticable here, to enter upon details of these medicines, or an account of the numerous kinds of inhalers in use, but we may mention two remedies very frequently employed with marked benefit, namely, the Pumilio Pine Essence, (Stern's), largely in use at the Pine Therapeutics Establishment at Farnborough, and elsewhere, and "Sanitas," a peculiar preparation, discovered by Mr. Kingzett, F.C.S., obtained by the atmospheric oxidation of turpentine; it consists largely of peroxide of hydrogen.

I feel that I cannot conclude this sketch of Inhalation better, than by quoting the following passage from the late Sir Henry Holland's *Medical Notes and Reflections*:—"The great agent in determining the changes in the blood is, undoubtedly, the respiration; and commanding this function, as we do, to a great extent, both in the quality and amount of what is inspired, we are bound to take

more advantage than has yet been done, of all which this important power can afford us for the relief of disease."

## COUNTRY LABOURERS' COTTAGES.

EVEN those philanthropists who devote much time and energy to the improvement of the condition of the dwellings of the poorest classes in our towns, have little idea of the unsanitary state of many of the cottages inhabited by the working population of our rural districts.

Some time ago, it was asserted in print by an able sanitary inspector in Oxfordshire, that if the standard cubic space of air required in our workhouses, namely, 300 cubic feet for each adult, were enforced in agricultural labourers' cottages, it would be found necessary to close 80 per cent. of the existing dwellings provided for the accommodation of the poor. This assertion is very startling, but it is fully borne out by the following extracts taken almost at random from the Report of the Commission on Agricultural Employment, published some years ago.

"It is lamentably evident, that though much has been done towards remedying the omissions of past generations in this respect, a large proportion of the agricultural labourers throughout the country are still housed in dwellings in which they cannot fail to be subjected to great and serious discomfort, and in which the decencies of life are often impossible." . . . "The majority of cottages which exist in rural parishes are deficient in almost every requisite that should constitute a home for a Christian family in a civilised community." . . . "Modesty must be an unknown virtue, decency an unimaginable thing, where, in one small chamber, with the beds lying as thickly as they can be packed, father, mother, young men, lads grown, and growing up girls, two and sometimes three generations, are herded promiscuously."

In one return, the labourers' cottages are described as "miserable;" in a second, as "deplorable;" in a third, as "detestable;" and speaking of a fourth district, failing to find words expressive enough

the Commissioners remarked that the cottages were "a disgrace to a Christian community."

Turning with a shudder of horror and disgust from these reports, we take up the annual report of a medical officer of health in a western county, and there we come across the following graphic description of the houses of the poorer classes in his locality; not so revolting as those already quoted, but still, showing the necessity of prompt improvement. "Nearly all the houses are built on a level with the ground, or even lower, with a step down into them, and no precaution is taken to put a waterproof course of bricks above the surface of the ground, so as to prevent the damp ascending the walls from the earth. These two oversights make the house-walls and floor damp, the dampness of the upper floor"—the cottages being only one storey high—"being insured by the absence of spouting under the tiles, the dripping from which easily soaks through the thin walls. Another thing that requires attention is, that the bedroom windows are generally so made as not to open. In this way the upstairs rooms are necessarily kept in a foul and unwholesome condition. This, with the lowness of the rooms, makes them very unhealthy. Added to all, we have the crowded state of the cottages, and the dirt and neglect of sanitary arrrangements, in many of these small houses." The medical officer of health, whose statements we have quoted, has to do with what may be considered an exceptionally good district, as compared with many we are acquainted with.

Evidently there is plenty of real work to be done for the remedy of this unsatisfactory condition of things in the rural parts of England; involving no great individual expense to the respective owners of property, yet sure to be productive of immense and immediate results. With regard to the defective construction of the cottages, it is the obvious duty of the proprietors, either to improve existing dwellings, or to erect new ones. As to the careless, dirty habits of some of the cottagers, that is rather to be attributed to the state of the houses, little better than pig-styes, in which they live. Our experience of the agricultural poor, and it is, by no means, a limited one, is that, similar to the case of his town brother, if you give a working man a comfortable home, no matter how humble it

may be, you place him in circumstances conducive to his physical and moral welfare ; and that it will not be long before his bettered condition will prove an advantage to those around him as well as to himself.

Rural England is not, and never will be, the Arcadia which our poets and novelists delight in depicting ; but, at any rate, much may be effected for the amelioration of the dwellings of the agricultural poor, and this amelioration would soon shew a remunerative return by diminishing the rates, as well as by promoting the well-being of society at large.

M.P.

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# OUR LABORATORY.

A SAMPLE of *Natural Seltzer Water* comes to hand from the "Catley Abbey" Natural Seltzer Water Company, Sleaford, Lincolnshire. It possesses many valuable medicinal properties, is exceedingly palatable, and likely to become extremely popular.

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FROM Messrs. Root & Co, of 38, Great Russell Street, W.C., has been received a tin of *Cuca Cocoa*. Beyond the advantages it offers in the administration of a slight stimulant and temporary enlivener, it is a thoroughly well prepared dietetic article.

* * *

MESSRS. MORRIS, LITTLE & SONS, of Doncaster, forward several of their *Phenyle* Preparations. They are conveniently dispatched in handy form, and from the fact that, although thoroughly antiseptic and capital deodorisers, they are entirely harmless, are sure to meet with an increasing demand.

* * *

A BATCH of Specialities for Invalids, consisting of *Lozenges, Extract, and Essence of Beef*, and also a bottle of sauce, is sent us by Messrs. Mason & Co., 417, King's Road, Chelsea. The former are desirable acquisitions for the necessities of the healthy as well as the sick, and are most carefully manufactured from the best British beef. The latter, the O.K. Sauce, will be found an appetising addition to the temptations of the cruet.

*Krantz's Patent Food* abounds in nitrogenous and flesh-forming elements. It is well prepared, nutritious, and easily digested. It may be obtained from the well-known firm of Messrs. Griffith & Co., 42, Cheapside, E.C.

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To the Crown Perfumery Company, 177, Bond Street, I am indebted for an exquisite little bottle, containing *Lavender Salts*. Both useful and ornamental, it is a most desirable and refreshing addition to the room of the invalid as well as to the writing-table of the brain-worker.

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The analysis of a sample of Irish whiskey, branded "*Innishargy*," distilled and vended by Messrs. McKnight, Dickson & Co., of 19, Church Lane, Belfast, proves it to be wholesome and free from fusel oil. It is an exceedingly pure and safe alcoholic stimulant, mild and mellow, with all the characteristics of a very high-class production, and recommends itself alike to the connoisseur and the medical practitioner.

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Messrs. Bronnley & Co., of London and Paris, send us four separate samples of toilet soaps, specially prepared by the milling process. The soap is good, fragrant, and through its peculiar manipulation, economical. It is most tastefully displayed in triplet boxes.

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Several samples not yet examined, and analyses not yet completed, will receive notice in our next.

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It is particularly requested that Dietetic and Hygienic preparations which require to be noticed in the following issue will be sent in during the next few days.

Gilbert D. Sutherland.

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## A GOOD IDEA FOR ARCHITECTS AND BUILDERS.

### A BACK ROAD FOR SEWERS AND PIPES, &c.

Sewers are constructed under main streets, drains run beneath the basement of houses, water-closets are placed inside the houses.

All this is wrong upon sanitary principles, but in places already covered with houses it cannot be avoided. It has certainly been proposed to diminish this evil in some degree, though more especially with reference to the disturbance of the roadways, and the consequent stoppage of traffic, by placing sewers and water-pipes in a viaduct under the roadway, but this is a very costly method, and to a considerable extent impracticable. The older parts of London and other towns must, it is to be feared, remain much as they are in this respect. In all new towns, however, a more convenient and a more healthy system should be enforced by legislative measures.

For this purpose a back road should be made at the rear of all rows of houses, as was, indeed, the common practice in past times in many country towns. In this back road should be placed all the pipeage for the various houses. Then the water-closets should be erected at the back of the houses, and all drains could run beneath the yard or garden, instead of under the house, to the rear.

Thus, the worst evil of town dwellings, not only in the houses, but in the frequent disturbance of thoroughfares to inspect and repair pipes and drains, would be obviated. The importance of this improved arrangement will be readily conceded if it be considered that, supposing London should continue to increase at the present rate, at the end of the next seventy years it will contain four times its present population. While we can scarcely realise, in imagination, this possible contingency, we should be sorry to forecast any retardation of the prosperity of this huge city of the future, by neglect of hygienic precautions, looking at the vast amount of misery that would be entailed. It is absolutely necessary, then, for sanitarians to devise methods for the accommodation of such a population in a wholesome and healthful manner.

M. R. I. B. A.

## READING IN RAILWAY CARRIAGES.

Ophthalmic surgeons have long warned people not to read in railway carriages, and have pointed out that the sudden jerks with which trains advance, lead to a constant movement of the book and

consequently to a great strain of the adjusting apparatus of the eyes. The other day I found myself in an express on its way to Manchester; the carriages were full of clergymen hurrying to the Church Congress, and I took my seat opposite to five young clergymen; while others sat by me. All were intently reading, and I watched them for many miles more curiously than I had ever before watched half a dozen men reading. I soon noticed that one only had perfect, normal vision, and he threw his head well back and supported his book firmly against his crossed knees; the book did not shake much, and his eyes were not greatly strained. But the other five, in different degrees, all had imperfect sight, one or two very bad sight indeed, and they stooped over their books, holding the latter close to their eyes. I could hardly have believed it possible that books should jerk about so much; sometimes the eyes were five inches off, at others, fourteen or sixteen, and this went on without a break. I could not but wonder how many tugs the muscles gave the eyes, and how great was the compression of the eyeballs going on. Though young, all these clergymen were, of course, full-grown and set, and their sight was not likely to be seriously affected, but what would have been the case with children of twelve or thirteen, in whom the eyeball is readily compressed and pulled out of its normal shape? The alarming increase of short sight, to which Mr. Priestley Smith, of Birmingham, has drawn attention in a recent lecture, may find one of its chief causes in reading in trains. It would be far better never to strain the eyes in this fashion, but what is only imprudent in the grown up is most foolish and perilous in the very young, and children, at any rate, should be strictly prohibited reading in trains.

A Medallist in Surgery.

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## ODD SUGGESTIONS FOR THE DISPOSAL OF THE DEAD.

The quickest, safest, best, and most rational method for the disposal of the dead is cremation, and in spite of the opposition which it has met with from various quarters, it is steadily and securely obtaining

a firm footing in the land. The most juvenile student in the field of science knows that the human body, in common with other bodies, is composed of certain elements which, so long as life continues, form a chemical combination and remain united, but when the vital spark is extinguished, separate, and return by a process of decomposition to their original form. This process of decomposition, through our present system of burial, means the spread of disease germs, and constitutes an evil, the magnitude of which cannot easily be conceived. Earth, air, and water are alike contaminated, and the living suffer from the emanations of those pits of pestilential putridity commonly known as graves. This is by no means one of the suggestions, but it leads up to and provides an opportunity to give a plumper to a system which " yields instant obedience to the laws of nature."

It was suggested in *The Times* that the best appliance for cremation is to be found in the ordinary gas retort. "Here," says the writer, " we have a confined receptacle in which every particle of offensive matter would be speedily and effectually destroyed, the gas alone finding its way to the gasometer or holder, and in due time illuminating our dwellings, while the ashes could be collected, if that be desirable, in a complete and compact state. It has been proved that a dead horse in good condition would make something like 8,000 feet of gas—equal to the produce of a ton of coal. What can be pleasanter than the reflection that our mortal remains might be rendered not only innocuous to the living, but a source of light and comfort ? There is something practical in the idea hereby thrown out of converting the defunct into purposes of enlightenment—'even in our ashes live their wonted fires.'" The delights of reading, or eating, or cooking by gas that had been made from the body of a friend or relation would be inexpressible, whilst the triumphant glee that would animate the human frame upon "turning on " all that remained of an inveterate enemy is a thing not to be lightly passed over.

Another suggestion comes from a Mr. George Hay, a chemist. He would pulverise the body by the aid of machinery. He says, " The machines might be contrived so as to break the bones first in pieces of the size of a hen's egg, next into fragments of the size of a marble,

and the mangled and lacerated mass could next be reduced by means of chopping machines and steam power to mincemeat. At this stage we have a homogenous mixture of the entire body structures in the form of pulpous mass of raw flesh and bones. This mass should now be dried thoroughly by means of steam heat at a temperature of 250 degrees, because we wish, firstly, to disinfect it, as no contagious disease retains its vitality at this temperature. Once in this condition it would command a good price for the purpose of manure. Another method is by boiling in close vessels. The oil which would rise to the top may be drawn off to be converted into soap or a lubricant. The residue may by various simple processes be converted into fertilizing material." Mr. Hay's final and most brilliant suggestion is the "distillation" method, similar to one already given. The bodies are to be placed in gas retorts, and in about six hours will be converted into illuminating gas, water, ammonia, tar, and animal charcoal. By subsequent distillations such substances as sulphate of ammonia, aniline colours, and carbolic acid may be obtained.

The Monastery of the Dried Monks is situated on the Island of Malta. It is the usual custom there when a brother dies to dry him in the breeze from the harbour and then place him in a niche in the chapel, fully equipped in sandals and cowl. On the whole, this drying process seems fairly satisfactory, and a nice dry body might be utilised as a hat-stand, or even as a lamp-holder. Someone else has suggested that we should be compressed after death into blocks, and then by exposure in some dropping well to the action of water become petrified, and used as building material. This has its advantage. It would be of little use boasting you "came over with the Conqueror" unless by the magnitude of your house you could demonstrate a line of ancestors sufficient to convince the sceptic that they would extend back to to 1066.

An American gentleman has recently turned his body to a good account as souvenirs and mementos. He wished to leave his very attentive relations something to remember him by, so to his beloved brother he willed his right hand and arm; to another brother the left corresponding members; to another his right foot; to a fourth his left leg; to a nephew his nose; to a niece an ear; to cousins

teeth ; and to his beloved sister-in-law his liver. He adds that it grieves him to part with himself in this way, but a gift that costs the donor no sacrifice is worth nothing. As to his fortune, after leaving a thousand dollars for the dissection of his body, he disposes of all the rest of his estate to public charities.

That skeletons are frequently utilised as manure there can be no doubt. The recent account of a shipload of human bones that were brought in the good ship *Dub* from Alexandria to Aberdeen has demonstrated a trade worthy of ghouls. Of course it does not matter a rap whether we are turned into fertilisers or not, but it seems hard that the poor fellows who fought our battles, and who under the peculiar conditions were buried in a harmless fashion and in an out-of-the-way place, should be disinterred and desecrated for the paltry price of guano.

DIOGENES.

## REVIEWS AND NOTICES OF BOOKS.

CHRISTIAN SCIENCE HEALING : Its Principles and Practice, with full explanations for Home Students. By Frances Lord. London : George Redway, 1888. Pp. 477.

WE must confess to a considerable amount of disappointment upon attempting to peruse this handsomely got up volume. We say "attempting," advisedly, for anyone who reads through it from cover to cover might possibly acquire a knowledge of what is meant by Christian Science, but he or she—for the book seems to be more especially addressed to the fair sex—would assuredly stand in need of healing, mentally, long before reaching the last page.

The late Sir William Lawrence, Surgeon to St. Bartholomew's Hospital, a bold thinker and an equally bold speaker, in days when even mere commonplace scientific statements were regarded as akin to heresy, once raised quite a dust in theological circles by describing the Pentateuch from a scientific point of view, as "full of assertions and contradictions, with no proofs." We might almost say the same of the book under notice. We are told a great deal about the power of the will, the Divine spirit, mesmerism, mysticism, and the like ; yet we have to look a good deal for Christian proofs of the working of Christian Science healing.

One case which struck us is put on record in the following paragraph :—"Very marvellous is some of the work done by faith-healers. An English lady, prominent in Temperance Work, the "World's Missioner" (whatever that may be) "of the Women's Christian Temperance Union, was telling us that a workman was crushed at her husband's tannery so badly that the doctors said he could never work again ; whereupon she determined to take him to the Beth-Shan" (a faith-healing institution, we presume) "at Liverpool. She needed the assistance of a faithful servant, so suffering was he. They took him ; she paid for his stay for two weeks, and left him there. Scarcely had she got back to Scotland when he walked into her library one morning ; he had been healed in a single treatment ; crushed ribs and injured shoulder were restored in the twinkling of an eye, he said." Would that we had known, twelve months ago, of this fortunate tanner's case, so

that, under the charge of a "World's Missioner" and a faithful servant, we might have made the journey to Liverpool. It will scarcely be believed, perhaps, but it is none the less a fact, that, having been seriously hurt through a cab accident last December, the result being two broken ribs and a bruised shoulder, we, notwithstanding skilful surgical and medical treatment, found ourselves fairly into the present year before recovery was completed. No wonder is it that in face of such miraculous results as her friend vouched for, the authoress should hold in contempt everything appertaining to surgery and medicine, and put her confidence in will-power and spirit agency. Properly speaking, faith-healing should stay at these two agencies, but the authoress also includes in a list of things she has trust in,—Electricity, Magnetism, and Mesmerism.

The book is arranged in the form of lectures, twelve in number, representing, we are told in the preface, a course on Christian Science, for which, delivered to classes in America, a fee of from £1 to £20 is charged. We do not doubt this statement, but we certainly doubt the sanity of people who would pay such prices for the privilege of listening to twelve such lectures.

## NOTES AND NEWS.

EASILY SATISFIED.—In some agricultural parts of the North of England, a distich is in use which serves to show alike the occasionally straitened circumstances of the labourers, and the wonderful resignation with which they bear their privations :—

"They as ha'nt beef must be thankful for bread,
And give praise to the Lord, its not turnits, (turnips) instead."

NICOTINE.—This extractive principle of tobacco is so powerful a poison that a single drop of it applied to the eye of a cat will destroy the animal's life in a few minutes. Cats, dogs, or rabbits will die in 20 or 30 seconds if even less than a drop is placed upon the tongue, so rapid is its absorption, and so virulent are its poisonous properties.

CAFFEINE.—Between 3,000 and 4,000 lbs. of Caffeine are manufactured yearly in Germany from damaged tea which has been rejected by the British Custom Houses.

HITTING THE RIGHT NAIL ON THE HEAD.—"Doctor" said a gouty patient to a physician who knew his habits, and whom he had called in, "I want you to be thorough, and to strike at the root of the disease." "I will," exclaimed the doctor, at the same time bringing his cane down sharply on a decanter which stood on the sideboard, close by.

MEASLES are epidemic in various parts of the metropolis, and in some country districts, to such an extent that it has been found requisite to close the schools, and to adopt other precautionary measures.

AMERICAN WHEAT CROPS indicate a larger yield, on the aggregate, than in any previous year, being close upon 2,000,000,000 bushels. The general average per acre is rather under 27 bushels.

THE AMOUNT OF CARBONIC ACID produced by a single gas jet, in a given time, is as much as would be formed by seven grown-up persons. This fact is, of itself, a sufficient explanation of the headache, lassitude, and other signs of injury to health, which result from remaining long in a gas-lit room that is not properly ventilated.

UNIVERSAL COOKERY AND FOOD EXHIBITION.—At a recent meeting, held at the St. James's Hall Restaurant, the full report of the Exhibition held this year was received with much satisfaction. It showed that the success of the undertaking had been so marked that a net profit of £800 had been realised, which sum had been divided equally between the Charing Cross Hospital and the French Hospital. After the routine business had been finished, letters were read from numerous persons of position and influence promising their hearty support of a similar exhibition to be held next year. It was consequently decided that one should be arranged for, Mr. C. H. Senn, of 329, Vauxhall Bridge Road, having again been appointed as the honorary secretary.

# Diet and Hygiene:

A FORTNIGHTLY MAGAZINE

OF

FOOD, DIETETICS, & HEALTH.

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## CHEAP AND WHOLESOME FOOD.—No. III.

By DR. A. J. H. CRESPI.

"YES!" the reader will exclaim, "cheap and wholesome, no doubt, but not nice food." Now, there, my dear critic, you are greatly in error: food can be cheap, wholesome, and nice. What do you say to ripe plums, selling as they were sixteen months ago, at a halfpenny per pound, or mushrooms at the same price? Don't fancy that cheapness and nastiness necessarily go together; but *here* I think that you sometimes go wrong; you fancy that everything that costs a great deal is palatable and dainty. "This wine," once remarked a gentleman, "ought to be excellent, it cost me £6 a dozen." "Yes," replied his friend, "it ought to be good at that price, but the manufacturers have put in too much vinegar and a great deal too much brandy." A friend once handed me some strawberries—"They cost me one shilling an ounce, and these kidney beans are worth their weight in silver," he added. I thanked him, and thought, as I tasted these flavourless luxuries, that I had often eaten strawberries and kidney beans that had not cost me one farthing, or anyone else either, and which were a hundred times as good. No! I repeat, if you only know how, you can live agreeably and well without spending any great sum on your cuisine. Oh! that my trustees had made me a cook! What dishes I would have served up out of old kid gloves

and other such dainties. But it was not to be, and it is now too late to take to the art, profession, and craft of the cook; Oh! that I were only twenty once more!

Nothing would have astonished our forefathers more, in the good old days which everyone praises, though thankful they are passed away, than the profusion of the modern kitchen, while, as for the cheapness and variety of all kinds of food, which is conveyed from the remotest parts of the earth to our shores, is anything more startling? The perishable productions of the tropics appear on our tables side by side with the not less perishable foods of sub-Arctic regions. Famines are impossible, while the times are long past when there was any great inequality in the retail price of food in different districts of the same country. Milk and butter are often much cheaper in a huge town, with 400,000 inhabitants, than in a village, and fruit and vegetables are generally scarcer and more expensive in the latter. The epicure whom an indiscriminating Fate has blessed with an abundance of money, rubs his hands and thinks himself in Paradise, and the man who is never weary of sounding the praises of the present is equally joyful. The change has drawbacks though. It is *not* an unmixed good that thousands of ships should bring to our shores the costly foods of distant lands; and it is *not* a great step in civilization that small shops are full of rich viands tempting to the appetite, pleasing to the eye, but ruinous to the pocket, and destructive of health. We have advanced, and are advancing, but everything new is not necessarily good, and that is a truism that many people forget.

Human nature is much the same everywhere. In man, it has been humourously said, there is a great deal of human nature. Modern English epicures are not worse than those of three centuries ago, nor than those of Rome in the days of her decadence. Our ancestors, content with gorging themselves on roast beef and strong ale, would have hailed still more expensive and luxurious foods could they only have got hold of them. The artisan of our day envies the luxury of his employer, and complains that the latter has fish, flesh, poultry, rich fruit, and expensive wine, while he himself has only coarse meat, stale vegetables, and muddy ale, but he might not, were he in his master's place, set an example of greater self-restraint. No class can claim a monopoly of virtue; and I dare not pretend that

the rich are more abstemious and contented than the poor, but I should equally hesitate to give the poor credit for great virtue.

Famines are never again likely in civilized countries, and railroads and steamships have equalized the cost of food in all parts of the same country. We can go even farther and confess that luxuries and dainties are within the reach of what a few years ago would have been called the poorest classes; nor do I fear contradiction when I say that, taking things as a whole, cheap and wholesome food is more within the reach of all classes in England than was ever formerly the case. So far the condition of the nation is improved. But, the mischief of having fresh tastes developed, and greater opportunities of gratification is not trifling. Food, which our grandfathers would have been satisfied with, does not content us, while that which we eat will not be relished by our descendants. Civilization brings evils as dreadful as those which it banishes. There is incessant motion, but not always progress, and change may be for the worse as well as the better. Walter Bagehot, in "Physics and Politics," puts this most impressively in a few sad words, which I have quoted scores of times and shall often use again:—"How painful is the conclusion," he said, "that it is dubious whether all the machines and inventions of mankind have yet lightened the day's labour of a human being. They have enabled more people to exist; but these people work just as hard, and are just as mean and miserable as the elder and the fewer."

To lavish praise on the inhabitants of simpler and ruder countries is absurd. They have not the Englishman's wants, and if they are happier, their happiness comes from ignorance, not from self-restraint. Perhaps, however, the simple habits of savages are often the outcome of poverty, not of greater virtue. The gluttony of the savage is proverbial, and I once read that among the Eskimo, after the stomach had received what even the warmest admirers of the unsophisticated wild man could not but confess was a liberal allowance of whale's blubber and other savoury foods, and when the tired gourmand had to lie down worn out by his exertions, his attached consort would sometimes, as a great treat, cut up tempting morsels, and force them down his throat, so that he might not, poor fellow! feel the pangs of hunger. Not much simplicity of living in such a custom it strikes

me. Swiss and Scotch mountaineers soon become adepts in civilized vices. The Red Man sacrifices liberty, health, all he has, for the fire water, which his ungovernable appetite cannot resist. Immigrants from the soberest countries of Europe drink beer, whenever and wherever they can get it, as soon as they settle in England, and become as drunken and worthless as the worst of our countrymen. Look at it how we will, ninety-five men in a hundred are virtuous and abstemious as long as, but no longer than, they are debarred from self-indulgence; and as soon as the opportunity for sensual gratification comes habits change, and they eat and drink even more gluttonously than the persons who have had every facility for unrestrained indulgence from childhood. It is a painful commentary on the blessings of civilization, that so little are the masses of a nation able to use without abusing, that discoveries and inventions which should make life happy, prosperous, and free from care, are actually those that bring a fresh crop of evils and retard the advance of mankind. As I am writing this article my eye is caught by a paragraph in the *Standard* on the death of a Birmingham labourer from a large draught of brandy, and death from long continued indulgence in poisonous beverages is one of the commonest occurrences conceivable in English life.

"The Euphrates Expedition," by my old friend Dr. Ainsworth, gives some curious information respecting the cuisine of the Easterns, which hardly shew that the much vaunted followers of Mahomet set us a good example. When the Arab keeps to dates and water, well, am I uncharitable in hinting that it may be because he cannot get roast pork and rum?

Something has been done by eminent writers and by the Press, to make our countrymen confess the sad truth that profusion and waste may go hand in hand with increasing perfection of the arts and with the advance of science, so that at the end of twenty years every step forward may be practically counterbalanced by one back. Greater simplicity of diet has been insisted upon, and the advantages of cheap and wholesome, though neglected foods, much vaunted. Little good seems to come from these efforts, perhaps because the teachers seldom practise what they preach. As long as those who preach confess that what they consider good enough for the poor will not do for themselves, the working classes may listen, but they will copy the example set them.

It is something that sanitary writers, the medical profession, and periodical literature have been on the right side, and have spoken out bravely, but how much better had there been more practising, less preaching. There have been exceptions. That lively and delightful writer, Lady Barker, late honorary Superintendent of the School of Cookery at the West End, in some of her widely-circulated books and articles urged that a more generous diet should be given to boys, and hazarded the opinion that they seldom knew what it was to be well fed. I read this statement with amazement, having come to a different conclusion from noticing the voracity with which growing lads consume everything that comes in their way. Till Lady Barker taught me better, I somehow fancied that boys of the richer classes never knew what it was to be hungry.

Have we not all heard that common wheaten bread—that very bread which we have on our tables and find so unpalatable, and which we look upon as an adjunct to food, not as a principal part of it, is eaten ravenously and preferred to cake by civilized wanderers on their return from savage lands, where they have not been able to get it, and as for our familiar bush fruits, how refreshing and dainty they seem to the resident in tropical countries.

A most startling book on food was published ten years ago, and was entitled "A Manual of Diet and Regimen in Health and Disease." The author, Dr. Thomas King Chambers, Consulting Physician to St. Mary's Hospital, laid down certain rules which were commended by the *British Medical Journal*, the *Daily News*, and *The Rock*, but which I thought most preposterous. It is quite correct for a man in his position to praise simple food, and condemn luxury and extravagance, but not necessarily to practise what he commends. But that a man, who, among other matters, is Honorary Physician to the Prince of Wales, and who is quoted as a great authority, should praise good living, late rising, splendid dinners, expensive wine, and many meals was startling. There is no need to tell people to eat and drink half-a-dozen times a day all the luxuries of the season, and so ruin their health and digestion. They will do that fast enough. But it is the duty of a man, whose position gives his utterances weight, and whose special knowledge teaches him what ought to be done, though he may not practise it, to raise his voice in

solemn protest against the sensuality, over-eating, and free drinking of this most luxurious age and nation.

One can hardly tell what mischief may come from the folly of men, whose epicureanism is a reproach to our age, when they are so highly placed that their random utterances receive the publicity of influential publications ready to accept anything as gospel coming from Court physicians, peers, and ministers of state. Were our countrymen satisfied with three simple and wholesome meals a day; were they to renounce tobacco, alcoholic beverages, and rich foods, there would be an end to complaints of the dearness of food, and few persons would find it difficult to obtain a sufficiency of cheap, nutritious, and wholesome food.

## LONGEVITY.

UNDER the title of *Modern Methuselahs*,* Mr. J. B. Bailey has brought out an interesting and readable book. The question, How to attain length of years has considerably exercised the minds of men from time immemorial, and will, doubtless, continue to do so until Time is no more. Whether the game is worth the candle is another matter altogether. If a man should live a little longer than the usually allotted span of years, of what benefit can that be to him if he is in the condition described by Shakespeare in the last of the seven stages of Man—"Sans eyes, sans teeth, sans taste, sans everything?" But, on the other hand, there are undoubtedly now and then instances of persons who maintain their faculties, who possess considerable bodily vigour, and who have a keen relish for life, years after that period at which the majority fade away out of sight till, at last, it seems almost as if (as was said of the case of a peculiarly hale and hearty old man) "Death had forgotten" them.

Now, before we proceed to the discussion of "long-lasting"—the phrase employed by Lord Bacon in speaking of a ripe old age—under which title Mr. Bailey gives a long and very instructive chapter, let us consider what age a man might be reasonably

* Chapman and Hall, London.—Pp. 460.

expected to live to, if he were of sound constitution, regular habits, comparatively easy circumstances, and observant of hygienic precautions. It is a well-recognised fact that the natural period of life of any animal is five times that which is needed for the completion of development of the skeleton. This process occupies twenty-one years in man, so that the possible term of life in his case would, therefore, be one hundred and five years. With his usual exactitude Professor Sir R. Owen calculated the term at one hundred and three years and a few months. Other scientists have extended the term to 120 years (basing their view on a passage which occurs in Genesis, chapter vi.) ; Haller puts the figure higher still—viz., at 150 years, while Hufeland has recorded it as his opinion that, by proper attention to the laws of health, man's existence may be extended to 200 years.

Biblical authority appears to show that the patriarchs surpassed even the figures just named ; but something is wanted in support more definite than traditional assertions lacking corroborative evidence. In fact, it is much easier to suppose errors in data and calculation, than that such abnormal ages were reached. Referring to a statement made by the Bishop of Winchester, Professor Owen remarked that he had no objection to theologians claiming that the days of the patriarchs were miraculously extended, but that he defied any scientific witness to certify that it would be possible for man, as now constituted, both as regards his frame and his functions, to live to the ages of the antediluvians.

At the present time nothing is open to more fallacy than the unsupported evidence of any unusually old person as to his age. It should be remembered that the memory is apt to become treacherous, and that the aged themselves, as well as the people about them, have a decided—though, perhaps, for the most part unintentional—tendency to exaggeration ; and, consequently, much scepticism is expressed when cases are mentioned of persons who are said to have nearly reached one hundred years of age, or to have passed that term. The most energetic sceptic in this respect was the late Mr. Thoms, editor of *Notes and Queries*. His book on the subject contains many remarkable instances of alleged centerianism, which, on being investigated by Mr. Thoms, resulted in showing that,

although the men and women referred to had attained a good old age, their claims to be regarded as centenarians could not be sustained. But, as Mr. Bailey points out, though many of the cases investigated by Mr. Thoms did not stand his tests, the very method of investigation, which threw discredit on many instances, firmly established the truth of some others, details of which are given in "Modern Methuselahs."

In addition to these, Mr. Bailey devotes greater part of his book to the biography of individuals whose great age has helped to bring them into prominence. We must pass over several of these notabilities, who certainly can only be styled "modern" by the greatest possible straining of the term—amongst them St. Anthony (born A.D. 251, died 356), Joannes Cantacuzenus, Emperor of the East, Gemisthus Pletho (also an asserted centenarian), and, coming nearer to our own time, Cornaro, Titian, Fontenelle, and others. Cornaro's life is of especial interest in connection with the subject of longevity, owing to the autobiographical sketch of it, which he left behind him. Whether or not a man of originally powerful constitution, he ran such a course of "fast life," that, before he had reached his fortieth year (1508), his health had completely broken down. At the age of forty, to use his own words, "having tried all remedies fruitlessly, the physicians told me that there was one help for me, if I could constantly pursue it—to wit, a soberly and orderly life; for this had every way great force for the recovery and preserving of health, as a disorderly life to the overthrowing of it, as I too well by experience found. For temperance preserves even old men and sickly men sound; but intemperance destroys most healthy and flourishing constitutions. They added withal, that unless I speedily used that remedy, within a few months I should be driven to that extreme, that there would be no help for me but death, shortly to be expected." How little have matters changed in 400 years! How often have physicians during that period found it incumbent on them to speak as plainly to their patients as his medical advisers did to Cornaro! But the subject of Mr. Bailey's memoir not only took advice, but followed it up to the date of his death; gradually recovering his strength, and shaking off his infirmities, by adopting an ascetic mode of diet. He did not waver in this course, like the

individual referred to in the old quatrain :—

"When the devil was sick,
The devil a monk would be;
When the devil got well,
Devil a monk was he."

On the contrary, as Cornaro derived benefit from meagre food, he felt encouraged to further deductions from his meals till his "whole day's meat"—bread and eggs, and flesh and broth, was twelve ounces exactly weighed, while the measure of his drink was fourteen ounces. All this was the result of personal experience, for, although his doctors recommended him to adhere to certain broad principles, they left the application of them to Cornaro's own judgment. However weak his body may have been, his mind was strong and, using the word in its best sense, stubborn. He held that there is as great a diversity of "tempers," *i.e.*, constitutions, as of faces, and that it behoved every man to test and decide for himself; which he set about in the most methodical and painstaking manner possible, rejecting this article of food and accepting that, until he had made his final choice. "Trusting in experience," says he, "I forsook all those kinds of meat and drinks which I had found hurtful, and chose that wine," (it may be here remarked that, although he was essentially temperate, Cornaro was not a total abstainer), "that fitted my stomach, but in such measure as easily might be digested; *above all, taking care never to rise with a full stomach, but so as I might well both have eaten and drank more.*" The *italics* are ours, not those of the centenarian Italian (will our readers pardon this unpremeditated pun ?) and these few words may be well laid to heart by all, who will gain much advantage thereby, without the necessity of strictly imitating Cornaro in other respects. It should be here mentioned that, as he advanced in years, instead of taking, as formerly, only two meals a day, he divided the total daily quantity into four collations, because, thus divided, the food was more easy of digestion. It must not be omitted, too, that he was fully aware of the importance of general hygienic precautions.

Cornaro has been much misrepresented by many who have written of him, for they have depicted him as a sort of gloomy hypochondriac, with no nobler view and no higher aspiration than the eking out of an unusually long life. The facts were just the

opposite. After his recovery, he retired to Padua, where he erected a palatial residence, kept open house, and warmly welcomed men of science, letters, and arts. He devoted considerable energy to the reclamation of waste lands, and formed a scheme for improving the course of the Tiber, and he was an authority on agriculture, draining, dykes, and fortifications. He was a keen sportsman, and a good horseman; and amongst his literary productions were a treatise on architecture and a comedy, the latter written when he was eighty-three. His end was as calm as his life had been, for he passed peacefully away in his arm-chair at his house in Padua.

What, our readers will naturally inquire, are the elements mainly conducive to "long-lasting." Briefly summed up they are,—a good, sound constitution, a fair and not overtaxed digestion, such physical and mental activity as never allow torpidity of body and vacuity of mind to act destructively upon the constitution, and an even temperament. Even those who do not possess the first of these qualifications, can contribute materially to proper enjoyment of life, and to longevity, by cultivating the conditions which conduce to the others. W. A.

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## THE ADULTERATION OF OLIVE OIL.

By Thomas T. P. Bruce Warren.

In considering the adulteration of olive oil several facts of commercial and general importance force themselves upon our attention; I can easily conceive that the questions may occur to many: Why should olive oil especially engage our attention? and whether this article is more fraudulently dealt with now than hitherto?

Recent legislation has given this subject an importance which justifies its being brought under the notice of the readers of Diet and Hygiene. On the 1st of January of the present year, two important Acts of Parliament came into operation, one of which was the Merchandise Trades' Act. A well-known London daily paper (the *Standard*) commenting on these Acts, referred to the fact that Lucca oil was largely manufactured in Hull.

Obviously, Hull has no right to issue or brand her manufactures

with a name. which not only is misleading, but is simply dishonest. Before we go further, we may ask how far a few other European nations have contributed to this commercial scandal? It would be a very unfair thing if our own Legislation should step in and stop a manufacture, simply for the benefit of the foreigner. Until those countries capable of producing genuine olive oil clear the article passing under this name from the odium attached to it, they have no right to ask us to help them. Hull is so far right that she produces Lucca oil quite equal to the article coming from that locality. The strictly legal aspect of this question will certainly not bear discussion.

That olive oil is more seriously adulterated now than it was a few years ago, is well known. When we consider the legitimate uses to which olive oil should be applied, we must be thankful if nothing worse than cottonseed oil comes in our way. Unfortunately, rosin oil is more frequently met with in a certain class of pickles, tinned sardines, &c. English ingenuity is answerable for this upleasant concoction. No Act of Parliament can prevent a person from swallowing rosin oil if he so chooses, and when we buy an article preserved in oil, we must not be too inquisitive about it if we wish to preserve our appetite. I know of no form of adulteration where so much ingenuity and scientific acumen have been methodically brought to bear, as in the case of olive oil.

The following extraordinary statement on olive oil adulteration appeared in a well-known trade journal (the *Oil and Colourman*) in April last :—"On account of its high price, it is often adulterated with other well-refined oils. The means of detecting this artificial adulteration, unfortunately, require so much pains, that it has been given up. Certain adulterations would best be detected by the smell, but since the German Zollverein, in order to share the advantage of cheapness, has decided that imported articles within its jurisdiction must be mixed with 1 to 2 per cent. of turpentine, the means of detecting the odour has had to be abandoned."

Turpentine is by no means a wise selection, inasmuch as it would render any mixture of olive oil quite unfit for many of its appropriate uses. The term olive oil should not be used without some qualification when applied to an adulterated article. I met with a specimen a few weeks ago, of American origin, which was labelled "Salad Oil;"

it was quite devoid of the smell and flavour of the olive, but, no doubt, was perfectly wholesome and well fitted for the use implied by its name.

The difficulty in dealing with adulterations of this kind is increased by the fact that the adulterating ingredient itself is liable to be adulterated, and hence we have to provide against a double adulteration. In considering this subject, we have not only to think of what may be more appropriately used for this purpose, so as to create a difficulty in its detection, but the pecuniary advantage is of primary importance.

In reviewing the historical bearing of the adulteration of olive oil, we meet with abundance of facts to confirm this. Cottonseed oil was very largely used a few years ago, indeed, it was manufactured almost exclusively for this purpose ; being low in price and having a bland taste were advantages in its favour, but its detection is now so simple, that it is replaced by other oils or mixtures containing cottonseed oil, which though more expensive, approach more nearly to olive oil in their chemical and physical deportment. I am indebted principally to Chateau and Fontenelle for what was recorded up to 1864. My own personal experience was, that at that time, there was no difficulty in meeting with olive oil, fully answering to what we believed to be the genuine article. But it is very evident from Chateau's work that there existed strong mental uneasiness with respect to olive oil.

When Chateau wrote, the following oils were used for adulterating olive oil :—

Oil of Poppyseed (source, *Papaver somnijerum*).
„ Walnut „ *Juglans regia*.
„ Earthnut „ *Arachis hypogæa*.
„ Sesame „ *Sesamum orientale*.
„ Beechnut „ *Fagus sylvatica*.

And as used in manufactures with :—

Oil of Colza (source, *Brassica*, varieties *var.*)
„ Rape „ „ „ „
„ Linseed „ *Linum usitatissimum*.

Chateau, says "that these mixtures are sometimes coloured with indigo, so as to imitate the true green oil from Malaga. The

adulteration with poppy oil is now more frequent on account of the commercial advantages belonging to this oil, and of the mildness of its flavour and the slightness of its smell properties, which betray the fraudulent admixture of most oils." He does not give cottonseed oil as being used, although Fontenelle states that it is used for this purpose. Sperm oil, lard oil, and almond oil must also be included in the list of adulterants of olive oil.

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## A NEW THEORY OF RINGWORM.

By Rev. J. E. Vize, M.A., F.R.M.S.

In bringing forward the subject of ringworm, I have but one desire —namely, to try to contribute some notions very strongly entertained by myself, and some facts in connection with them which are not unlikely to be of benefit to sufferers from that peculiarly trying affection.

First of all, what is ringworm? It is a disease affecting the human hair, more particularly that part of the hair which is close to, and immediately underneath the skin. When the disease first breaks out, the skin becomes reddish and irritable; these symptoms increase, the hair, which is unhealthy, loses a good deal of its vitality, as might be naturally concluded, for the reason that, as the roots of the hair which contains the disease are injured, so they impair the nutriment which is essential to the growth of hair, just as the leaves and branches of any tree would suffer materially if they were deprived of nourishment from the root owing to the soil at the ground being poisoned. Finally, there is a scurfy appearance about which a few words will have to be said by-and-bye. Putting these things together, there is evidently a regular gradation from the reddish irritation of the skin to the roughened scurfy look which the disease assumes.

With regard to the treatment of ringworm, it is well authenticated by the medical profession that what fails at one time to effect a cure, is of efficacy at another time, and that the very reverse obtains on other occasions; so that remedial agents may cure to-day that will

not cure to-morrow. The medicaments used are consequently numerous; for instance, sulphate of zinc has been used as an external lotion—so, also, the parts of the head affected have had sweet oil applied, or, still better, carbolic acid and oil (which I may refer to, by the way, as invaluable in cases of stings from wasps or bees), and this application may be supplemented by a little essential oil of geranium to remove the odour of the carbolic acid. Nitric acid has also been employed, as well as ammonia, chloride of mercury, croton oil, ink (on account of the gallic acid it contains) and other remedies. The affected hairs have also been removed one by one. The diseased parts have been shaven, or deprived of hair, very closely to the scalp. Now, all these modes of treatment are acknowledged to be liable to failures. There is not one of them which can be calculated upon with any fair probability of success, but rather the opposite. Dr. Malcolm Morris, lecturer on skin diseases at St. Mary's Hospital, London, wrote as follows in one of the medical journals some time back.—"That chronic ringworm of the scalp is a difficult disease to cure, every practitioner will admit." In a subsequent part of the article, he says, "it is a fungus growing on and in the hairs, extending deeply into the follicles as far as the roots." I most heartily ratify his opinion. Ringworm, emphatically, is a fungus; and this being the fact, enables me, as a student of minute fungi, to venture to think that a cure may be found for it. Dr. John Cavafy, of St. George's Hospital, London, wrote afterwards on the subject of ringworm in the same paper. His remarks fully confirm the fungus theory, although possibly without his having the fungoid nature of the disease in his mind. He says, "I find it an extremely difficult matter to be quite certain that every hair is healthy in a scalp that has once been affected with ringworm. . . I have had cases, which seemed cured, brought back to me on some future occasion with distinct ringworm, and it is no doubt possible that this may have started afresh from an old undetected, excessively minute focus, or it may be due to re-infection." These two specialists confirm each other most exactly.

But it will be said, with reference to my assertion, how do you know it to be a fungus? From the very nature of its growth. A friend of mine, in common with the rest of his family, suffered

acutely from ringworm some eleven years since. He mounted some microscopical slides of the disease, and gave me two of them, which I still have. They are undeniably fungoid. Within the roots of the hair I can distinctly detect the mycelium, or rootlets of the fungus. Then, further on, the growth of the plant is to be seen, and, when fully grown, the ripe spores, corresponding to the ripe seeds of corn and flowers, are present in numbers. These ripe spores are the source whence the disease is reproduced. As for re-infection there can be no such thing without the ripe spore, any more than we could reproduce in a field a crop of beans without any seed at all being in the ground. These spores are very minute, they are round, and easily carried through space by the atmosphere. I remember an instance wherein a young man had ringworm. The cap he wore, before undergoing treatment for his disease, was left in the hall of his father's house on a certain peg. The lad was very soon cured. Twelve months afterwards, and not until then, he used the cap once more, and very soon had an outbreak of the ringworm again. The spores were in the cap undoubtedly, and had retained vitality during the whole time.

Now, there are some fungus spores and plants which are capable of living under ordinary light, others prefer a semi-opaque light, while others, again, will not live long in utter darkness. It seems to me that the ringworm fungus is one of these. I wonder very much indeed whether any case is known, or has ever been recorded, where any person has been in utter darkness for a few days and had any ringworm disease left in him at the expiration of that time. If my theory be true, darkness—the blackness of darkness—without a ray of light for some time, might be expected to kill the plant and the spore.

*Forden Vicarage, Welshpool.*

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CLIMATE.—During the last few days the sudden change of weather has set hundreds of thousands of Englishmen grumbling, and wanting, like the Cornishmen in the ballad, to "know the reason why." Perhaps these unpatriotic malcontents would prefer a residence "out West." We recently saw a letter from a young fellow who has gone out to try his fortune at a Canadian horse ranche; speaking of the weather he says :—"The cold weather is just beginning and the ice is pretty thick, on some lakes it will bear a horse and rider. That's nothing; when the real cold weather comes on you can't carry water in a bucket for a hundred yards without it gets frozen over. We have it in winter about 45° below freezing point the whole time, yet in summer it is 140° in the shade." Old England is not so bad in the matter of climate, after all.

# REVIEWS AND NOTICES OF BOOKS.

THE SON OF A STAR: A ROMANCE OF THE SECOND CENTURY. BY BENJAMIN WARD RICHARDSON, M.D. Longmans, Green & Co., London.

We depart from our custom in reviewing the last original work from the pen of Dr. Richardson, and we do so because it is a rare occurrence for a thinker, trained in the severe methods of medical practice, to write a novel. Medical practitioners, from their favourable opportunities of seeing so many phases of character, ought to be profound scholars of human nature, and to enrich literature with dramatic works of enduring fame: Mr. Richard Davy has just given us a couple of charming dramas, and Dr. Richardson seems to share our opinion, and has attempted a task demanding the profoundest insight into character, and a vast range of antiquarian and historical learning. Time will show the verdict of the world on his venture—one that has the merit of originality. The task that he has attempted was peculiarly difficult, for in addition to dramatic power, it demanded a classical training rarely found except in the alumni of our great public schools and ancient universities. Dr. Richardson has done his work thoroughly, and the least we can say is that he has produced a book, which all who commence it will read through, while many will be so deeply interested that they will return a second time. Predictions have a tendency not to come true, still we think the work will be a success, and that, whether it adds to the fame of the indefatigable author or not, (a fame so well established, and resting on so sure a foundation, that it would be scarcely possible to increase it), it will not find a formidable rival in his other voluminous writings, indeed we are glad to learn that it is making its way and that many learned Jews have received it with unqualified approval. The novel sketches, the history of the last great Jewish revolt, that headed by Simeon Bar Cochba, the Son of a Star, and the suppression of which led to the complete dispersal of the Hebrews and to their almost entire ejection from Palestine. Real characters are freely introduced, and real events described; unfortunately, however, some of these historical personages loom up so grandly in the records of the

past that the greatest care was needed in depicting them, and there could not but be some risk of failure, or rather of not reaching the lofty ideal expected by scholars, in making Hadrian, Julius Severus, Akiba, Huldah and Bar Cochba live again. To hint that Dr. Richardson has had a difficult task, one taxing his admittedly great powers is only to say, what he would be the first to confess, that he does not equal Shakespeare, Scott and Thackeray.

Dr. Richardson has long made a profound study of the Jews and is deeply read in their history and present condition. The first time we ever saw him he was giving a lecture on the Jews in the Birmingham Masonic Hall, fourteen years ago, to a crowded and delighted audience. Little did we then think that we should one day know him, and number him among our correspondents, and may we say friends. How long before that time Dr. Richardson had been hard at work studying the Jews we do not know, but many passages in his later writings shew that that ancient people are a source of constant delight to him and that he is fully competent to write upon them.

Writing for Englishmen, it was a happy thought to commence the narrative with an apocryphal episode in the career of Hadrian, a meeting between him and Simeon Bar Cochba in Western Britain. There is much felicity of language, vigour of description, and love of the picturesque, and the style recalls many passages in his earlier writings in which his fervid imagination and his veneration for antiquity must impress every reader. The title, "A Romance of the Second Century," is evidently intended to disarm critics. A romance disclaims any pretension to be a historical novel; still it might have been better not to introduce so much of the marvellous in any work published in our sceptical day. The escape uninjured of Simeon Bar Cochba from the peril of the torch of fire, after a long and rapid run, enveloped in flames, is brilliant and exciting, but anyone who knows what severe burns commonly result from very brief exposure to fire feels that his interest is being aroused by an almost impossible escape. The same objection applies to the cures effected by Hadrian and the Jewish maiden Huldah, although Tryphon reminds us that faith plays a great part in them, and adds that in all men there is a certain reserve of vitality on which they can in any emergency draw; again,

the Noviomagians, living seven and a half miles from Londiium, are scarcely wisely introduced, and Leviathan recalls portions of Jules Verne. We admit there is much humour in many passages, and we often thought of More's "Utopia," Bacon's "House of Solomon," and of our present author's "City of Health—Hygiea." The age is hard to please, and we no longer tolerate methods to which our ancestors did not demur. Millions read such *jeux d' ésprits* as "She" and "King Solomon's Mines," but more to pass away the time than from deep and lasting interest in those astounding tales, and the "Son of a Star" ought not to be placed in the same category: a careful revision will greatly improve it as a work of art, and give it a better chance of taking a permanent place on our shelves. The author will no doubt profit from the hints he will get from reviewers. Of course Richardson has many instances of the advantages of introducing the marvellous—"The White Lady of Avenel" is not the only one in the pages of Scott, and Shakespeare often borders on the miraculous—still it is better to avoid anything that savours of extravagance. These are only minor blemishes, and we again congratulate our colleague on a success which could hardly have been anticipated. Whether he will again venture into the realms of fiction we do not know, but we are sure that this work represents the labour and thought of years, and his admiration of the Jews—of their enduring vitality and individuality—is seen in every page. To him the "Son of a Star" was a congenial task. We are not surprised to notice that he has said many a good word on behalf of simple living and abstemious drinking—a subject on which the great Apostle of Scientific Temperance speaks with no mean authority.

ALFRED J. H. CRESPI.

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## SPRATS FOR MACKEREL.

ACCORDING to tradition and universal acceptation, the one thing calculated to entice and entrap the mistrustful mackerel is the silvery sprat. That any such proclivity should be developed in a sprat is not at all to be wondered at, since we are well aware how, after being

the means of actually obtaining money under false pretences, this sinful denizen of the deep has the audacious impudence to pretend that he is not a sprat at all but a sedate sardine; and it requires no wonderful stretch of the imagination to suppose that his little ghost hovering near the tin cabinet in which he rests so comfortably tucked up in oil actually laughs at the imposition when he sees the dainty fingers delicately place the defunct "flash of light" upon toast, and after a pious closing of the eyes and solemn ejaculation of "*For What?* we are going to receive," gobble it on trust as the genuine article. No wonder then that, being thus successful with mortals who have powerful and overwhelming intellects, the simple mackerel should fall a ready prey into its toils. Doubtless the originator of the sprat theory was a clever man, and always providing that sprats were to be found in abundance, there is little doubt but that they would be universally adopted as the becoming bait. They possess three qualities sufficient in themselves. They are showy, cheap, and, as far as they go, genuine. Being showy, they catch the eye; being cheap, they are economical; and being genuine, they give the appearance of righteousness to the transaction. But they are not always in season, and hence the necessity arises for the fisherman, or the "fishers after men," to find some other temptation equally killing and equally practicable, and more calculated to catch other fish than those of the mackerel family, which, although white and firm and wholesome, are not to be compared to the succulent sole or the sumptuous salmon. The experience with the sprat shows the lines of success by which to calculate the other bait. It is after all but a matter of ratio, a mathematical arrangement, which requires precision and patient working.

Lately for a change in the *modus operandi*, I have left the mackerel and cast a line for sprats. They are not easy to discover. I have been fortunate. Will you glance into my creel? Here are some. Receipts and prescriptions for causing the hair to grow, or to reduce corpulency, abolish consumption, cancer, or any other of the ills that flesh is heir to, will be sent gratis upon receipt of a stamped addressed envelope, and the advice of a leading light hailing from the Eclectic School of Medicine of Peru, whose only mission in this world is to propagate his healing virtues, and disclose his peculiar (?) treatment,

which makes the whole school of British surgeons take a back seat, and knocks the venerable College of Physicians into a cocked hat, will be thrown into the bargain. Thrice happy patient who reads the glowing lines, and smarting at the recollection of a recent abnormal fee, or indignant at the impudence of the advice which remonstrated with his excessive proclivities for a dozen bitters before lunch, and the best part of a bottle of whisky after dinner, to say nothing of incidentals, he writes at once; and who can tell his joy upon receiving by return the much-to-be-wished-for formula? True, it may be, that he does not understand what the potent ingredients may be; but is not the friendly chemist, with whom he often cracks a passing joke, within hail? And he hastens with his treasure, bangs it on the counter, and in a tone which there is no mistake about desires it to be concocted there and then.

Imagine his surprise on being told that the ingredients, with one exception, are simple, exceedingly simple, and at hand. The one exception, the prickly cabbage of Patagonia, would be, the chemist assures him, a most inexpensive botanical remedy if one happened to be resident in the immediate vicinity of Patagonia. Still he has neither the time nor opportunity to write or make a voyage of discovery, even on the off-chance of selling a couple of half-crown bottles. The would-be purchaser is annoyed, and deaf to the advice that something to be found nearer home is, according to the British pharmacopœia, equally efficient, he returns to his house and writes off-hand to the benevolent medicine man who has already obliged him. The answer duly arrives, "The remedy can be obtained, but the late seasons having been disastrous to the prickly cabbage (not to mention a recent plague of locusts and concomitant evils), the price is high, but he can be supplied with a bottle for half-a-guinea on receipt of P.O.O." This, after due consideration, is sent. The bottle arrives, and repeated applications, outwardly or inwardly, as the case may be, assisted by a strong dose of credulity on the part of the patient, demonstrates slight improvement; and so it goes on, one half-guinea after another, until Nature, in the ordinary course of events, reasserts herself. Or, on the other hand, the patient grows gradually worse, and is obliged to return to the family physician, who not only diagnoses his complaint, and tells

him the truth, but also diagnoses the fact, unsavoury as it may be, that the sufferer has, in sending for that enticing formula, and in swallowing the prickly cabbage extract, swallowed (figuratively speaking) a sprat which has once more appropriately caught a mackerel. DIOGENES.

## PEAT *VERSUS* COAL, AS FUEL.

SEEING that coal is going up in price, by rapid bounds, and that a few weeks' severe weather, or a colliery-strike of any magnitude, might at any time raise the price to an almost prohibitive point, the question of substitutes for coal is one of considerable present interest. We remember, some few years ago, when the great snowstorm almost suspended traffic of all kinds, that coal was one of the first articles in everyday use to jump up in the market, as evidenced by the fact that we paid £5 for two tons delivered at our residence in London; and we also recollect when a ring of wholesale dealers, known at that period as "the forty thieves," contrived to rig the Coal Exchange transactions to such an extent that scarcely a ton of coals was available for Metropolitan consumption, although many thousands of tons were stacked at one railway terminus alone, when fortunately the "forty," like their namesakes in the proverb, disagreed as to the allotment of the plunder, and the honest householder breathed freely once again.

Various substitutes for coal have been suggested, but all are open to more or less objections, keeping them from general adoption, except that which heads this article,—Peat.

Peat, as most people know, is a species of turf, composed of an accumulation of vegetable matter, found in very large quantities in many fenny and boggy localities. It forms the principal fuel in a considerable portion of Ireland, Scotland, and some parts of England and Wales; in fact, it is used to an extent unappreciated by dwellers in our large towns and most of our rural districts. How many Londoners, for instance, have ever seen a peat fire, and had opportunities of practically forming an opinion concerning this fuel? A very small proportion; and the consequence is that they go on

burning coal for all purposes in a heedless and extravagant manner.

As we shall show directly, peat possesses certain advantages over coal, which render its introduction into ordinary use desirable. In the first place it is cheap; for a block of dried peat, rather more than half-a-foot square, and costing a halfpenny, will, without any attention, maintain a fire for some three or four hours. Once ignited, it burns steadily, until the whole of it is consumed. Secondly, it is noiseless; a matter of no small importance in a sick room, where the frequent putting-on of coals, and the still more frequent dropping of cinders, or of fragments of unconsumed coal, constitutes a nuisance to which every invalid will testify. We were struck lately, on making a visit at Kensington, with an instance of wifely solicitude for the comfort of our patient, who was suffering from a serious nervous malady. The least sound worried and irritated the poor fellow, and in order to diminish the annoyance created by replenishing the bedroom fire his wife had instructed the housemaid to carefully envelop the coal, broken small, in little brown paper bags before bringing the scuttle up-stairs. But this ingenious expedient only minimised the evil; it did not wholly obviate it, for paper bags will burn when brought into contact with fire, and pieces of coal and cinders will fall out of a grate whenever an opportunity offers itself, and nervous patients will start in bed every time that this natural result of the law of gravitation occurs. So I recommended this model wife to write to the Peat Fuel Company, 21, Finsbury Pavement, E.C., for a supply of their sun-dried peat-blocks; and the use of these in place of coal quickly earned the thanks of both my patient and his wife, while the complete quiet of the room almost as rapidly effected a marked improvement in the condition of the invalid. Thirdly,—and this is a point of importance in the case of bedroom fires which are kept in all night, or of fires which during the daytime are burning where they are not under constant inspection, — peat is safe. There is no crackling, and no possibility of embers dropping beyond the limits of the fender, to which causes so many accidental fires can be traced. Finally, while the gases exhaled from burning coal are injurious to health, particularly in a closed room, giving rise to feverishness, parched throat, headache, and lassitude, peat smoke is

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admittedly healthy. It has valuable antiseptic properties, and has a soothing effect upon the lungs and air-passages in bronchial, asthmatic, and other affections of the chest.

M.D.

# OUR LABORATORY.

*NOTICE.—We are at all times pleased to receive and report upon genuine dietetic or hygienic preparations.*—EDITOR.

A SAMPLE of Tea from the Camellia Tea Company, St. George's House, Eastcheap, E.C., proves, on being brewed, delicious. It is an article of fine quality and body, and recommends itself to all who are fond of the cup which cheers, but does not inebriate. It is economical, and it would be difficult to find better value for money.

MESSRS. THOMAS CHRISTY & Co., of 25, Lime Street, E.C., forward samples of *Kola Chocolate*, *Kolatina*, and *Gunn's Food of Life*, and rolled *White Oats*. Kola is not only more nutritious than Cocoa, but it contains a large percentage of Caffeine. Both the Kola Chocolate and Kolatina are extremely palatable, and invaluable substitutes for either tea or coffee to those who are troubled with weak digestion and dyspepsia. Gunn's Food of Life is a speciality prepared from oats for young children and invalids, and is especially welcome in the nursery, whilst the rolled White Oats afford the opportunity of having a basin of porridge ready in a few minutes.

A BOTTLE containing *Peptonate* of *Iron*, and another *Peptone* of *Meat*, come from The Denaeyer's Peptones Company (Limited), 118, Bishopsgate Street Within. They are both useful preparations, easily assimilated, and compare favourably with others of a similar character.

FROM Mr. MAURICE MEYER, the resident partner of the firm of Messrs. Dupuy & Fils, we have to hand two bottles of *Epernay*, made from selected grapes 1884. Although decidedly in favour of the dry wines ourselves, the Bruit is more appropriate and recommends itself to the invalid, since it is not liquered. They are both sound and desirable wines, with all the characteristics of a good vintage.

MESSRS. MOTT & Co., of Leicester, send us a sample of their *Cowslip Wine*. It is a most desirable addition to the good things to be dispensed at the forthcoming children's festivities.

AFTER wine comes weed, and we can speak very highly of the P. & O. Smoking Mixture of Messrs. Richard Lloyd & Sons, Holborn Bars, E.C.

GILBERT D. SUTHERLAND, PH.D.

# NOTES AND NEWS.

THE CENSUS of 1891 is already beginning to form the subject of preliminary arrangements and suggestions. An important memorial has been drawn up by a number of Members of Parliament, scientific men, medical officers, and representatives of public bodies, urging upon the Government the desirability of taking the census every five, instead of every ten years; and, if this should be deemed too costly, as applied to the whole country, that there should be a quinquennial census in all of our large towns.

* * *

FREE DINNERS FOR BOARD SCHOOL CHILDREN.—The Committee of the Association formed for the purpose of furthering this laudable object have just issued their sixth annual report, which not only shows the work which the society has done during the past twelve months, but the absolute necessity for prompt and great assistance. We would recommend any of our readers who are hesitating as to how to dispose of seasonable donations to bear in mind the address of the Honorary Secretary, Mrs. Pennington, 5, Alexandra Road, N.W.

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TOBACCO SMOKE was for many years regarded as a powerful disinfectant, but of late this has been regarded as a fallacy. Mr. Tassinari's recently published experiments bid fair to reinstate the vapour of the "noxious weed" in its original position. Smoke from a cigar was drawn over a piece of linen, which had been previously dipped into a fluid containing numerous microbes. Directly the fumigation had ceased, the linen was placed in a tube containing a liquid in which such germs could breed and multiply. The different micro-organisms thus experimented on included those of anthrax, cholera, and pneumonia; while similar check experiments were made, omitting the smoking. In every instance the effect of the tobacco smoke was to greatly delay the growth of the organisms, and in some cases it was wholly prevented. Where fumigation had not been resorted to, the ordinary course of growth and multiplication of the germs was observed.

## TO CORRESPONDENTS, &c.

*Dr. Spiers, Berlin.*—Thanks for your interesting communication.

*M.T.H., Brighton*, gives a remarkable instance of the effect of Tea Drinking upon the teeth, which formed the subject of article in *Diet and Hygiene*, in our November 16th number. Speaking of the dietetic value of coffee and tea, our correspondent very properly denounces the injurious practice of excessive tea-drinking.

*Impure Water.*—The clergyman who writes from the neighbourhood of Hull upon this important matter should place himself in communication with Dr. Sutherland, Ph.D., our official analyst.

*New Subscriber* can purchase any back numbers by sending soon to our West End office, 6, Wells Street, W. We may inform this correspondent and others who have written on the same subject that *Diet and Hygiene* would be sent free by post to any part of the kingdom, for the whole of 1889, upon receipt of a post office order for 8s. by our publishers, at the above given address.

*Mr. Roberts.*—You will find a notice of Saccharine at page 267.

*Chronic Invalid.*—Bath will probably be the next watering place described in our series of British Health Resorts. The places already dealt with are Leamington, Droitwich, Bournemouth, The Undercliff, Isle of Wight, Ilfracombe, Buxton, Dinsdale-on-Tees, Lowestoft, Woodhall Spa, the New Forest, Clacton-on-Sea, Walton-on-the-Naze, Hastings and St. Leonards. Our publishers can supply the number containing the description of any one of these places.

*Maier.*—We should not recommend the article you name. Try Cook's patent prepared oatmeal.

*Captain Walker.*—You should address a letter to the Manager, Pine Therapeutics Establishment, Farnborough, Hants.

*Author.*—Forward the M.S. to our publishers, who would give you an estimate for printing your pamphlet.

*Doctor.*—Your patient can obtain Coleman's Liebig's Extract of Meat and Malt Wine at the Dietetic Depôt, 6, Wells Street, W.

*Mons. Biron.*—No Society of the name you give exists in London.

*A Sanitarian.*—Mr. Jabez Hogg's work on the Use of the Microscope would be very useful.

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